INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Governor

Lori F. Kaplan
Commissioner

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PREVENTION OF SIGNIFICANT DETERIORATION (PSD) AND PART 70 SIGNIFICANT SOURCE MODIFICATION OFFICE OF AIR QUALITY

Monaco Coach Corporation, Plant 2
606 Nelson's Parkway
Wakarusa, IN 46573

(herein known as the Permittee) is hereby authorized to construct and operate subject to the conditions contained herein, the emission units described in Section A (Source Summary) of this approval.

This approval is issued in accordance with 326 IAC 2 and 40 CFR Part 70 Appendix A and contains the conditions and provisions specified in 326 IAC 2-7 as required by 42 U.S.C. 7401, et. seq. (Clean Air Act as amended by the 1990 Clean Air Act Amendments), 40 CFR Part 70.6, IC 13-15 and IC 13-17.

PSD Source Modification No.: 039-15620-00017	
Issued by: Original signed by Paul Dubenetzky, Branch Chief Office of Air Quality	Issuance Date:December 11, 2002

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SECTION A SOURCE SUMMARY

This approval is based on information requested by the Indiana Department of Environmental Management (IDEM), Office of Air Quality (OAQ). The information describing the emission units contained in conditions A.1 through A.3 is descriptive information and does not constitute enforceable conditions. However, the Permittee should be aware that a physical change or a change in the method of operation that may render this descriptive information obsolete or inaccurate may trigger requirements for the Permittee to obtain additional permits or seek modification of this approval pursuant to 326 IAC 2, or change other applicable requirements presented in the permit application.

A.1 General Information [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

The Permittee owns and operates a stationary source that assembles and paints high-quality, luxury motor homes that vary in floor plan and length.

Responsible Official:	Chief Administrative Officer/ Senior Vice President
Source Address:	606 Nelson's Parkway, Wakarusa, IN 46573
Mailing Address:	606 Nelson's Parkway, Wakarusa, IN 46573
Source Phone Number:	(219) 862-7347
SIC Code:	3716
County Location:	Elkhart
Source Location Status:	Attainment for all criteria pollutants
Source Status:	Part 70 Permit Program Major Source, under PSD Major Source, Section 112 of the Clean Air Act Not 1 of 28 Source Categories

A.2 Emission Units and Pollution Control Equipment Summary [326 IAC 2-7-4(c)(3)] [326 IAC 2-7-5(15)]

This stationary source is approved to construct and operate the following emission units and pollution control devices:

(a) One (1) primer/basecoat booth, one (1) clearcoat booth, and one (1) clearcoat/bake booth, identified as SV2-27, SV2-28, and SV2-29, respectively, in Partial Paint Line A, an aggregate maximum capacity of 10 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-27, SV2-28, and SV2-29, respectively.

(b) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-20, SV2-21, and SV2-22, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-20, SV2-21, and SV-22, respectively.

(c) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-13, SV2-14, and SV2-15, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-13, SV2-14, and SV2-15 respectively.

(d) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-7 and SV2-8 respectively, in Full Paint Line D, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-7 and SV2-8, respectively.

(e) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-1 and

SV2-2 respectively, in Full Paint Line E, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-1 and SV2-2, respectively.

This stationary source is approved to operate the following emission units and pollution control devices:

(f) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-23, SV2-24, SV2-25, and SV2-26, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-23A, SV2-23B, SV2-24A, SV2-24B, SV2-25A, SV2-25B, SV2-26A, and SV2-26B, respectively.

(g) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-16, SV2-17, SV2-18, and SV2-19, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-16A, SV2-16B, SV2-17A, SV2-17B, SV2-18A, SV2-18B, SV2-19A, and SV2-19B, respectively.

(h) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-9, SV2-10, SV2-11, and SV2-12, respectively, in Full Paint Line D, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-9A, SV2-9B, SV2-10A, SV2-10B, SV2-11A, SV2-11B, SV2-12A, and SV2-12B, respectively.

(i) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-3, SV2-4, SV2-5, and SV2-6, respectively, in Full Paint Line E, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-3A, SV2-3B, SV2-4A, SV2-4B, SV2-5A, SV2-5B, SV2-6A, and SV2-6B, respectively.

A.3 Specifically Regulated Insignificant Activities [326 IAC 2-7-1(21)] [326 IAC 2-7-4(c)] [326 IAC 2-7-5(15)]

This stationary source has not requested to construct or modify any insignificant activities which are specifically regulated, as defined in 326 IAC 2-7-1(21).

A.4 Part 70 Permit Applicability [326 IAC 2-7-2]

This stationary source is required to have a Part 70 permit by 326 IAC 2-7-2 (Applicability) because:

(a) It is a major source, as defined in 326 IAC 2-7-1(22);

(b) It is a source in a source category designated by the United States Environmental Protection Agency (U.S. EPA) under 40 CFR 70.3 (Part 70 - Applicability).

SECTION B GENERAL CONSTRUCTION CONDITIONS

B.1 Definitions [326 IAC 2-7-1]

Terms in this permit shall have the definition assigned to such terms in the referenced regulation. In the absence of definitions in the referenced regulation, the applicable definitions found in the statutes or regulations (IC 13-11, 326 IAC 1-2 and 326 IAC 2-7) shall prevail.

B.2 Effective Date of the Permit [40 CFR 124]

Pursuant to 40 CFR 124.15, 40 CFR 124.19, and 40 CFR 124.20, if there are no comments received during the public comment period, this permit becomes effective upon its issuance. If there are comments received during the public comment period, the effective date of this permit will be thirty (30) days after the service of notice of the decision. Three (3) days shall be added to the thirty (30) day period if service of notice is by mail.

B.3 Revocation of Permits [326 IAC 2-2-8]

Pursuant to 326 IAC 2-2-8(a)(1), the Commissioner may revoke this approval if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of eighteen (18) months or more.

B.4 Significant Source Modification [326 IAC 2-7-10.5(h)]

This document shall also become the approval to operate pursuant to 326 IAC 2-7-10.5(h) when, prior to start of operation, the following requirements are met:

(a) The attached affidavit of construction shall be submitted to the Office of Air Quality (OAQ), Permit Administration & Development Section, verifying that the emission units were constructed as proposed in the application. The emissions units covered in the Significant Source Modification approval may begin operating on the date the affidavit of construction is postmarked or hand delivered to IDEM if constructed as proposed.

(b) If actual construction of the emissions units differs from the construction proposed in the application, the source may not begin operation until the source modification has been revised pursuant to 326 IAC 2-7-11 or 326 IAC 2-7-12 and an Operation Permit Validation Letter is issued.

(c) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.

(d) The Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.

(e) In the event that the Part 70 application is being processed at the same time as this application, the following additional procedures shall be followed for obtaining the right to operate:

(1) If the Part 70 draft permit has not gone on public notice, then the change/addition covered by the Significant Source Modification will be included in the Part 70 draft.

(2) If the Part 70 permit has gone through final EPA proposal and would be issued ahead of the Significant Source Modification, the Significant Source Modification will go through a concurrent 45 day EPA review. Then the Significant Source Modification will be incorporated into the final Part 70 permit at the time of issuance.

(3) If the Part 70 permit has gone through public notice, but has not gone through final EPA review and would be issued after the Significant Source Modification is issued, then the Modification would be added to the proposed Part 70 permit, and the Title V permit will issued after EPA review.

SECTION C GENERAL OPERATION CONDITIONS

C.1 Certification [326 IAC 2-7-4(f)][326 IAC 2-7-6(1)][326 IAC 2-7-5(3)(C)]

(a) Where specifically designated by this permit or required by an applicable requirement, any application form, report, or compliance certification submitted shall contain certification by a responsible official of truth, accuracy, and completeness. This certification shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

(b) One (1) certification shall be included, using the attached Certification Form, with each submittal requiring certification.

(c) A responsible official is defined at 326 IAC 2-7-1(34).

C.2 Preventive Maintenance Plan [326 IAC 2-7-5(1),(3) and (13)] [326 IAC 2-7-6(1) and (6)] [326 IAC 1-6-3]

(a) If required by specific condition(s) in Section D of this permit, the Permittee shall prepare and maintain Preventive Maintenance Plans (PMPs) when operation begins, including the following information on each facility:

(1) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices;

(2) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions; and

(3) Identification and quantification of the replacement parts that will be maintained in inventory for quick replacement.

If, due to circumstances beyond the Permittee's control, the PMPs cannot be prepared and maintained within the above time frame, the Permittee may extend the date an additional ninety (90) days provided the Permittee notifies:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The PMP and the PMP extension notification do not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall implement the PMPs as necessary to ensure that failure to implement a PMP does not cause or contribute to a violation of any limitation on emissions or potential to emit.

(c) A copy of the PMPs shall be submitted to IDEM, OAQ, upon request and within a reasonable time, and shall be subject to review and approval by IDEM, OAQ. The PMP does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) Records of preventive maintenance shall be retained for a period of at least five (5) years. These records shall be kept at the source location for a minimum of three (3) years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

C.3 Permit Amendment or Modification [326 IAC 2-7-11] [326 IAC 2-7-12]

(a) Permit amendments and modifications are governed by the requirements of 326 IAC 2-7-11 or 326 IAC 2-7-12 whenever the Permittee seeks to amend or modify this permit.

(b) Any application requesting an amendment or modification of this permit shall be submitted to:

Indiana Department of Environmental Management
Permits Branch, Office of Air Quality
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Any such application shall be certified by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) The Permittee may implement administrative amendment changes addressed in the request for an administrative amendment immediately upon submittal of the request. [326 IAC 2-7-11(c)(3)]

C.4 Opacity [326 IAC 5-1]

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Alternative Opacity Limitations), opacity shall meet the following, unless otherwise stated in this permit:

(a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.

(b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

C.5 Fugitive Dust Emissions [326 IAC 6-4]

The Permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way, or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions). 326 IAC 6-4-2(4) is not federally enforceable.

C.6 Operation of Equipment [326 IAC 2-7-6(6)]

Except as otherwise provided by statute or rule, or in this permit, all air pollution control equipment listed in this permit and used to comply with an applicable requirement shall be operated at all times that the emission units vented to the control equipment are in operation.

C.7 Stack Height [326 IAC 1-7]

The Permittee shall comply with the applicable provisions of 326 IAC 1-7 (Stack Height Provisions), for all exhaust stacks through which a potential (before controls) of twenty-five (25) tons per year or more of particulate matter or sulfur dioxide is emitted by using good engineering practices (GEP) pursuant to 326 IAC 1-7-3.

Testing Requirements [326 IAC 2-7-6(1)]

C.8 Performance Testing [326 IAC 3-6][326 IAC 2-1.1-11]

(a) Compliance testing on new emission units shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up, if specified in Section D of this approval. All testing shall be performed according to the provisions of 326 IAC 3-6 (Source Sampling Procedures), except as provided elsewhere in

this approval, utilizing any applicable procedures and analysis methods specified in 40 CFR 51, 40 CFR 60, 40 CFR 61, 40 CFR 63, 40 CFR 75, or other procedures approved by IDEM, OAQ.

A test protocol, except as provided elsewhere in this approval, shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

no later than thirty-five (35) days prior to the intended test date. The protocol submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(b) The Permittee shall notify IDEM, OAQ of the actual test date at least fourteen (14) days prior to the actual test date. The notification submitted by the Permittee does not require certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(c) Pursuant to 326 IAC 3-6-4(b), all test reports must be received by IDEM, OAQ not later than forty-five (45) days after the completion of the testing. An extension may be granted by IDEM, OAQ, if the source submits to IDEM, OAQ, a reasonable written explanation not later than five (5) days prior to the end of the initial forty-five (45) day period.

Compliance Requirements [326 IAC 2-1.1-11]

C.9 Compliance Requirements [326 IAC 2-1.1-11]

The commissioner may require stack testing, monitoring, or reporting at any time to assure compliance with all applicable requirements by issuing an order uner 326 IAC 2-1.1-11. Any monitoring or testing shall be performed in accordance with 326 IAC 3 or other methods approved by the commissioner or the U. S. EPA.

Compliance Monitoring Requirements [326 IAC 2-7-5(1)] [326 IAC 2-7-6(1)]

C.10 Compliance Monitoring [326 IAC 2-7-5(3)] [326 IAC 2-7-6(1)]

If required by Section D, all monitoring and record keeping requirements shall be implemented when operation begins. The Permittee shall be responsible for installing any necessary equipment and initiating any required monitoring related to that equipment.

C.11 Monitoring Methods [326 IAC 3] [40 CFR 60] [40 CFR 63]

Any monitoring or testing required by Section D of this permit shall be performed according to the provisions of 326 IAC 3, 40 CFR 60, Appendix A, 40 CFR 60 Appendix B, 40 CFR 63, or other approved methods as specified in this permit.

Corrective Actions and Response Steps [326 IAC 2-7-5] [326 IAC 2-7-6]

C.12 Compliance Response Plan - Preparation, Implementation, Records, and Reports [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) The Permittee is required to prepare a Compliance Response Plan (CRP) for each compliance monitoring condition of this permit. A CRP shall be submitted to IDEM, OAQ upon request. The CRP shall be prepared within ninety (90) days after issuance of this permit by the Permittee, supplemented from time to time by the Permittee, maintained on site, and comprised of:

(1) Reasonable response steps that may be implemented in the event that a response

step is needed pursuant to the requirements of Section D of this permit; and an expected timeframe for taking reasonable response steps.

(2) If, at any time, the Permittee takes reasonable response steps that are not set forth in the Permittee's current Compliance Response Plan and the Permittee documents such response in accordance with subsection (e) below, the Permittee shall amend its Compliance Response Plan to include such response steps taken.

(b) For each compliance monitoring condition of this permit, reasonable response steps shall be taken when indicated by the provisions of that compliance monitoring condition as follows:

(1) Reasonable response steps shall be taken as set forth in the Permittee's current Compliance Response Plan; or

(2) If none of the reasonable response steps listed in the Compliance Response Plan is applicable or responsive to the excursion, the Permittee shall devise and implement additional response steps as expeditiously as practical. Taking such additional response steps shall not be considered a deviation from this permit so long as the Permittee documents such response steps in accordance with this condition.

(3) If the Permittee determines that additional response steps would necessitate that the emissions unit or control device be shut down, the IDEM, OAQ shall be promptly notified of the expected date of the shut down, the status of the applicable compliance monitoring parameter with respect to normal, and the results of the actions taken up to the time of notification.

(4) Failure to take reasonable response steps shall constitute a violation of the permit.

(c) The Permittee is not required to take any further response steps for any of the following reasons:

(1) A false reading occurs due to the malfunction of the monitoring equipment and prompt action was taken to correct the monitoring equipment.

(2) The Permittee has determined that the compliance monitoring parameters established in the permit conditions are technically inappropriate, has previously submitted a request for a minor permit modification to the permit, and such request has not been denied.

(3) An automatic measurement was taken when the process was not operating.

(4) The process has already returned or is returning to operating within "normal" parameters and no response steps are required.

(d) When implementing reasonable steps in response to a compliance monitoring condition, if the Permittee determines that an exceedance of an emission limitation has occurred, the Permittee shall report such deviations pursuant to Section B-Deviations from Permit Requirements and Conditions.

(e) The Permittee shall record all instances when response steps are taken. In the event of an emergency, the provisions of 326 IAC 2-7-16 (Emergency Provisions) requiring prompt corrective action to mitigate emissions shall prevail.

(f) Except as otherwise provided by a rule or provided specifically in Section D, all monitoring as required in Section D shall be performed when the emission unit is operating, except for time necessary to perform quality assurance and maintenance activities.

C.13 Emergency Provisions [326 IAC 2-7-16]

(a) An emergency, as defined in 326 IAC 2-7-1(12), is not an affirmative defense for an action brought for noncompliance with a federal or state health-based emission limitation.

(b) An emergency, as defined in 326 IAC 2-7-1(12), constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the affirmative defense of an emergency is demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that describe the following:

(1) An emergency occurred and the Permittee can, to the extent possible, identify the causes of the emergency;

(2) The permitted facility was at the time being properly operated;

(3) During the period of an emergency, the Permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit;

(4) For each emergency lasting one (1) hour or more, the Permittee notified IDEM, OAQ, and the Northern Regional Office within four (4) daytime business hours after the beginning of the emergency, or after the emergency was discovered or reasonably should have been discovered;

Telephone Number: 1-800-451-6027 (ask for Office of Air Quality, Compliance Section), or
Telephone Number: 317-233-5674 (ask for Compliance Section)
Facsimile Number: 317-233-5967

and
Telephone Number: 1-800-753-5519, or 219-245-4870
Facsimile Number: 219-245-4877

(5) For each emergency lasting one (1) hour or more, the Permittee submitted the attached Emergency Occurrence Report Form or its equivalent, either by mail or facsimile to:

Indiana Department of Environmental Management
Compliance Branch, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

within two (2) working days of the time when emission limitations were exceeded due to the emergency.

The notice fulfills the requirement of 326 IAC 2-7-5(3)(C)(ii) and must contain the following:

(A) A description of the emergency;

(B) Any steps taken to mitigate the emissions; and

(C) Corrective actions taken.

The notification which shall be submitted by the Permittee does not require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(6) The Permittee immediately took all reasonable steps to correct the emergency.

(c) In any enforcement proceeding, the Permittee seeking to establish the occurrence of an emergency has the burden of proof.

(d) This emergency provision supersedes 326 IAC 1-6 (Malfunctions). This permit condition is in addition to any emergency or upset provision contained in any applicable requirement.

(e) IDEM, OAQ, may require that the Preventive Maintenance Plans required under 326 IAC 2-7-4-(c)(10) be revised in response to an emergency.

(f) Failure to notify IDEM, OAQ, by telephone or facsimile of an emergency lasting more than one (1) hour in accordance with (b)(4) and (5) of this condition shall constitute a violation of 326 IAC 2-7 and any other applicable rules.

(g) If the emergency situation causes a deviation from a technology-based limit, the Permittee may continue to operate the affected emitting facilities during the emergency provided the Permittee immediately takes all reasonable steps to correct the emergency and minimize emissions.

C.14 Actions Related to Noncompliance Demonstrated by a Stack Test [326 IAC 2-7-5] [326 IAC 2-7-6]

(a) When the results of a stack test performed in conformance with Section C - Performance Testing, of this permit exceed the level specified in any condition of this permit, the Permittee shall take appropriate response actions. The Permittee shall submit a description of these response actions to IDEM, OAQ, within thirty (30) days of receipt of the test results. The Permittee shall take appropriate action to minimize excess emissions from the affected facility while the response actions are being implemented.

(b) A retest to demonstrate compliance shall be performed within one hundred twenty (120) days of receipt of the original test results. Should the Permittee demonstrate to IDEM, OAQ that retesting in one-hundred and twenty (120) days is not practicable, IDEM, OAQ may extend the retesting deadline.

(c) IDEM, OAQ reserves the authority to take any actions allowed under law in response to noncompliant stack tests.

(d) The Permittee may agree to follow an alternative set of compliance procedures other than those set out in (a) and (b) above, if it and IDEM, OAQ, agree to a different schedule of activities to address any noncompliant situation.

The documents submitted pursuant to this condition do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

C.15 General Record Keeping Requirements [326 IAC 2-7-5(3)][326 IAC 2-7-6]

(a) Records of all required data, reports and support information shall be retained for a period of at least five (5) years from the date of monitoring sample, measurement, report, or application. These records shall be kept at the source location for a minimum of three (3)

years. The records may be stored elsewhere for the remaining two (2) years as long as they are available upon request. If the Commissioner makes a request for records to the Permittee, the Permittee shall furnish the records to the Commissioner within a reasonable time.

(b) Unless otherwise specified in this permit, all record keeping requirements not already legally required shall be implemented within ninety (90) days of permit issuance.

C.16 General Reporting Requirements [326 IAC 2-7-5(3)(C)]

(a) The reports required by conditions in Section D of this permit shall be submitted to:

Indiana Department of Environmental Management
Compliance Data Section, Office of Air Quality
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

(b) Unless otherwise specified in this permit, any notice, report, or other submission required by this permit shall be considered timely if the date postmarked on the envelope or certified mail receipt, or affixed by the shipper on the private shipping receipt, is on or before the date it is due. If the document is submitted by any other means, it shall be considered timely if received by IDEM, OAQ, on or before the date it is due.

(c) Unless otherwise specified in this permit, all reports required in Section D of this permit shall be submitted within thirty (30) days of the end of the reporting period. All reports do require the certification by the "responsible official" as defined by 326 IAC 2-7-1(34).

(d) The first report shall cover the period commencing on the date of issuance of this permit and ending on the last day of the reporting period. Reporting periods are based on calendar years.

Part 2 MACT Application Submittal Requirement

C.17 Application Requirements for Section 112(j) of the Clean Air Act [40 CFR 63.52(e) and 326 IAC 2-7-12]

(a) The Permittee shall submit a Part 2 Maximum Achievable Control Technology (MACT) Application in accordance with 40 CFR 63.52(e)(1). The Part 2 MACT Application shall meet the requirements of 40 CFR 63.53(b).

(b) Notwithstanding paragraph (a), the Permittee is not required to submit a Part 2 MACT Application if the Permittee no longer meets the applicability criteria of 40 CFR 63.50 by the application deadline in 40 CFR 63.52(e)(1). For example, the Permittee would not have to submit a Part 2 MACT Application if, by the application deadline:

(1) The source is no longer a major source of hazardous air pollutants, as defined in 40 CFR 63.2;

(2) The source no longer includes one or more units in an affected source category for which the U.S. EPA failed to promulgate an emission standard by May 15, 2002; or

(3) The MACT standard or standards for the affected source categories included at the source are promulgated.

(c) Notwithstanding paragraph (a), the Permittee shall comply with an applicable promulgated MACT standard, including the initial notification requirements of the MACT standard, in

accordance with the schedule provided in the MACT standard, if the MACT standard is promulgated prior to the Part 2 MACT Application deadline. If a MACT has been promulgated and the source is subject to the MACT, the Permittee shall submit an application for a significant permit modification under 326 IAC 2-7-12 no later than nine (9) months prior to the compliance date for the MACT. The application should include information regarding which portions of the MACT are applicable to the emission units at the source and which compliance options will be followed. If a permit renewal application is due before the date that a significant permit modification application would be due, the Permittee shall include the required information in the renewal application in lieu of submitting an application for a significant permit modification.

SECTION D.1 FACILITY OPERATION CONDITIONS

Facility Description [326 IAC 2-7-5(15)]:

(a) One (1) primer/basecoat booth, one (1) clearcoat booth, and one (1) clearcoat/bake booth, identified as SV2-27, SV2-28, and SV2-29, respectively, in Partial Paint Line A, an aggregate maximum capacity of 10 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-27, SV2-28, and SV2-29, respectively.

(b) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-20, SV2-21, and SV2-22, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-20, SV2-21, and SV-22, respectively.

(c) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-13, SV2-14, and SV2-15, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-13, SV2-14, and SV2-15 respectively.

(d) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-7 and SV2-8 respectively, in Full Paint Line D, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-7 and SV2-8, respectively.

(e) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-1 and SV2-2 respectively, in Full Paint Line E, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-1 and SV2-2, respectively.

(f) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-23, SV2-24, SV2-25, and SV2-26, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-23A, SV2-23B, SV2-24A, SV2-24B, SV2-25A, SV2-25B, SV2-26A, and SV2-26B, respectively.

(g) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-16, SV2-17, SV2-18, and SV2-19, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-16A, SV2-16B, SV2-17A, SV2-17B, SV2-18A, SV2-18B, SV2-19A, and SV2-19B, respectively.

(h) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-9, SV2-10, SV2-11, and SV2-12, respectively, in Full Paint Line D, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-9A, SV2-9B, SV2-10A, SV2-10B, SV2-11A, SV2-11B, SV2-12A, and SV2-12B, respectively.

(i) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-3, SV2-4, SV2-5, and SV2-6, respectively, in Full Paint Line E, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-3A, SV2-3B, SV2-4A, SV2-4B, SV2-5A, SV2-5B, SV2-6A, and SV2-6B, respectively.

(The information describing the process contained in this facility description box is descriptive information and does not constitute enforceable conditions.)

Emission Limitations and Standards [326 IAC 2-7-5(1)]

D.1.1 Best Available Control Technology (BACT) and Maximum Control Technology (MACT) [326 IAC 2-2] [40 CFR 52.21][326 IAC 8-1-6][326 IAC 2-4.1]

Pursuant to 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration), the source must comply with the following requirements regarding the surface coating operations performed in Partial Paint Line A and Full Paint Lines B through E at Plant 2:

(a) Lacquer thinners and preparation cleaners and solvents used on motor home exteriors will be hand-wiped and contain a maximum 6.5 pounds VOC per gallon of coating as applied.

(b) Primers will be applied using high volume-low pressure (HVLP) spray equipment and contain a maximum of 3.5 pounds VOC per gallon of coating as applied.

(c) Base coats will be applied using HVLP spray equipment and contain a maximum VOC content of 6.5 pounds VOC per gallon of coating as applied.

(d) Clear coats will be applied using HVLP spray equipment and contain a maximum VOC content of 3.5 pounds VOC per gallon of coating as applied.

(e) Sealers will be applied using HVLP spray equipment and contain a maximum VOC content of 3.5 pounds VOC per gallon of coating as applied.

(f) The average VOC content for the base coat/clear coat system will contain a maximum VOC content of 4.5 pounds VOC per gallon of coating as applied. Compliance will be demonstrated on two parts clear coat and one part base coat.

(g) Good housekeeping practices will be employed to minimize leaks, spills, and evaporative losses. These include: sealing lids on all containers not in use or in storage, the purging of guns and lines into approved containers, maintaining an organized spill response and clean-up operation, performing routine maintenance on spray equipment and pumps to prevent drips and seal leaks, the use of solvent recovery systems to recover reusable solvents for on-site or off-site recycling, and using aqueous, exempt solvents or citric cleaners where effective and practical.

(h) All primers, base coats, and clear coats used in the repair booths will be applied with air-atomized spray equipment.

(i) Motor home exteriors will be hand-wiped with cleaning solvent prior to painting.

(j) Collected solvents will be recycled on-site and off-site to recover reusable solvents and minimize waste.

(k) Motor homes will be undercoated with a waterborne-low VOC coating.

(l) The surface coating operations shall use less than 539 tons of VOC, including coatings, dilution solvents, and cleaning solvents, per twelve (12) consecutive month period with compliance determined at the end of each month.

The VOC usage limit, in conjunction with the usage of low VOC/high solids coatings and high transfer application methods listed in (a) through (k) above and the VOC emissions from the insignificant natural gas fired air-make-up units, has been incorporated to limit the potential to emit VOC from Plant 2 to less than 540.4 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these requirements and limits will satisfy the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration).

D.1.2 Particulate Matter (PM) [40 CFR Part 52 Subpart P]

Pursuant to 40 CFR Part 52 Subpart P, the particulate matter (PM) from the surface coating operations shall not exceed the pound per hour emission rate established as E in the following formula:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10\ P^{0.67}$ where E = rate of emission in pounds per hour; and P = process weight rate in tons per hour

D.1.3 Volatile Organic Compounds [326 IAC 8-2-9]

Each paint line (partial paint line A and full paint lines B through E) has a maximum capacity less than thirty-five (35) vehicles (motor homes) per day. Therefore, the requirements of 326 IAC 8-2-9 are not applicable to the paint lines.

Any change or modification which may increase the maximum capacity of any paint line to greater than 35 vehicles per day must be approved by the OAQ before any such change may occur.

D.1.4 Preventive Maintenance Plan [326 IAC 2-7-5(13)]

A Preventive Maintenance Plan, in accordance with Section B - Preventive Maintenance Plan, of this permit, is required for this facility and any control devices.

Compliance Determination Requirements

D.1.5 Volatile Organic Compounds (VOC) [326 IAC 8-1-2][326 IAC 8-1-4]

Compliance with the VOC content limitation contained in condition D.1.1 shall be determined pursuant to 326 IAC 8-1-4(a)(3) and 326 IAC 8-1-2(a) by preparing, or obtaining from the manufacturer, copies of the “as supplied” and “as applied” VOC data sheets. IDEM, OAQ, reserves the authority to determine compliance using Method 24 in conjunction with the analytical procedures specified in 326 IAC 8-1-4.

Compliance Monitoring Requirements [326 IAC 2-7-6(1)] [326 IAC 2-7-5(1)]

D.1.6 Particulate [326 IAC 6-3-2(d)]

Pursuant to 326 IAC 6-3-2(d), particulate from the surface coating operations shall be controlled by a dry particulate filter and the Permittee shall operate the control device in accordance with manufacturer’s specifications. This requirement to operate the control is not federally enforceable.

D.1.7 Particulate Matter (PM)

The dry filters for particulate matter overspray control shall be properly placed and maintained to ensure integrity and particulate loading of the filters at all times that the paint booths are in operation.

D.1.8 Operator Training Program

The Permittee shall implement an operator training program.

(a) All operators that perform surface coating operations using spray equipment or booth maintenance shall be trained in the proper set-up and operation of the particulate control system. All existing operators shall be trained within 60 days of the date of permit issuance. All new operators shall be trained upon hiring or transfer.

(b) Training shall include proper filter alignment, filter inspection and maintenance, and trouble shooting practices. The training program shall be written and retained on site. The training program shall include a description of the methods to be used at the completion of initial and refresher training to demonstrate and document successful completion. Copies of the training program, the list of trained operators and training records shall be maintained on site or available within 1 hour for inspection by IDEM.

(c) All operators shall be given refresher training annually.

Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

Record Keeping and Reporting Requirements [326 IAC 2-7-5(3)] [326 IAC 2-7-19]

D.1.9 Record Keeping Requirements

(a) To document compliance with Condition D.1.1, the Permittee shall maintain monthly records of:

(1) The amount and VOC content of each coating material and solvent used. Records shall include purchase orders, invoices, and material safety data sheets (MSDS) necessary to verify the type and amount used; and

(2) The total VOC usage for each month.

(b) To document compliance with Condition D.1.3, the Permittee shall maintain daily records of the number of vehicles painted on each paint line in that day.

(c) To document compliance with Condition D.1.8, the Permittee shall maintain copies of the training program, the list of trained operators, and additional inspections prescribed by the Preventive Maintenance Plan. Training records shall be maintained on site or available within 1 hour for inspection by IDEM.

(d) All records shall be maintained in accordance with Section C - General Record Keeping Requirements, of this permit.

D.1.10 Reporting Requirements

A quarterly summary of the information to document compliance with Condition D.1.1 shall be submitted to the address listed in Section C - General Reporting Requirements, of this permit, using the reporting forms located at the end of this permit, or their equivalent, within thirty (30) days after the end of the quarter being reported. The report submitted by the Permittee does require the certification by the “responsible official” as defined by 326 IAC 2-7-1(34).

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

PART 70 SOURCE MODIFICATION CERTIFICATION

Source Name:	Monaco Coach Corporation, Plant 2
Source Address:	606 Nelson's Parkway, Wakarusa, IN 46573
Mailing Address:	606 Nelson's Parkway, Wakarusa, IN 46573
Source Modification No.:	039-15620-00017

This certification shall be included when submitting monitoring, testing reports/results or other documents as required by this approval.

Please check what document is being certified:

9 Test Result (specify) _____

9 Report (specify) _____

9 Notification (specify) _____

9 Affidavit (specify) _____

9 Other (specify) _____

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete.

Signature:

Printed Name:

Title/Position:

Date:

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
Compliance Data Section

Part 70 Quarterly Report

Source Name: Monaco Coach Corporation, Plant 2
Source Address: 606 Nelson's Parkway, Wakarusa, IN 46573
Mailing Address: 606 Nelson's Parkway, Wakarusa, IN 46573
Source Modification No.: 039-15620-00017
Facility: Partial Paint Line A; Full Paint Lines B through E
Parameter: VOC
Limit: The surface coating operations shall use less than 539 tons of VOC, including coatings, dilution solvents, and cleaning solvents, per twelve (12) consecutive month period with compliance determined at the end of each month.

YEAR: _____

Month	Total Amount of VOC used (tons)	Total Amount of VOC used (tons)	Total Amount of VOC used (tons)
	This Month	Previous 11 Months	12 Month Total
Month 1:			
Month 2:			
Month 3:			

9 No deviation occurred in this quarter.
9 Deviation/s occurred in this quarter.
Deviation has been reported on: _____

Submitted by: _____
Title / Position: _____
Signature: _____
Date: _____
Phone: _____

Attach a signed certification to complete this report.

December 11, 2002

Indiana Department of Environmental Management
Office of Air Quality

Technical Support Document (TSD) for a Prevention of Significant Deterioration (PSD) and Part 70 Significant Source Modification

Source Background and Description

Source Name:	Monaco Coach Corporation
Source Location:	Plant 2, 606 Nelson's Parkway, Wakarusa, IN 46573
County:	Elkhart
SIC Code:	3716
Operation Permit No.:	T039-7559-00017
Operation Permit Issuance Date:	not yet issued
Significant Source Modification No.:	039-15620-00017
Permit Reviewer:	ERG/BS

Monaco Coach Corporation ("Monaco") operates a stationary source that assembles and paints high-quality, luxury motor homes that vary in floor plan and length. Monaco currently operates two (2) partial paint lines, two (2) full paint lines, and one (1) repair line at their Plant 2 site. This modification will add thirteen (13) new booths to the source. These thirteen (13) new booths will be arranged with sixteen (16) existing booths to: modify one (1) partial paint line (identified a Line A), modify two (2) existing full paint lines (identified as Lines D and E), and create two new (2) full paint lines (identified as Lines B and C). Each full paint line may serve as a 'red' or 'blue' line; a full paint blue line uses up to 20% more coatings. Regardless of configuration, the maximum capacity of the entire source is 1.25 red units per hour, 0.75 blue units per hour, and 1.25 partial paint units per hour.

The Office of Air Quality (OAQ) has reviewed a modification application from Monaco relating to the construction of the following thirteen (13) spray booths and ancillary equipment:

(a) One (1) primer/basecoat booth, one (1) clearcoat booth, and one (1) clearcoat/bake booth, identified as SV2-27, SV2-28, and SV2-29, respectively, in Partial Paint Line A, an aggregate maximum capacity of 10 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-27, SV2-28, and SV2-29, respectively.

(b) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-20, SV2-21, and SV2-22, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-20, SV2-21, and SV-22, respectively.

(c) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-13, SV2-14, and SV2-15, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-13, SV2-14, and SV2-15 respectively.

(d) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-7 and SV2-8 respectively, in Full Paint Line D, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-7 and SV2-8, respectively.

(e) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-1 and SV2-2 respectively, in Full Paint Line E, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-1 and SV2-2, respectively.

The following sixteen (16) booths exist at the plant and, when combined with the booths identified above, will comprise the one (1) partial paint line and four (4) full paint lines:

(f) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-23, SV2-24, SV2-25, and SV2-26, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-23A, SV2-23B, SV2-24A, SV2-24B, SV2-25A, SV2-25B, SV2-26A, and SV2-26B, respectively.

(g) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-16, SV2-17, SV2-18, and SV2-19, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-16A, SV2-16B, SV2-17A, SV2-17B, SV2-18A, SV2-18B, SV2-19A, and SV2-19B, respectively.

(h) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-9, SV2-10, SV2-11, and SV2-12, respectively, in Full Paint Line D, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-9A, SV2-9B, SV2-10A, SV2-10B, SV2-11A, SV2-11B, SV2-12A, and SV2-12B, respectively.

(i) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-3, SV2-4, SV2-5, and SV2-6, respectively, in Full Paint Line E, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-3A, SV2-3B, SV2-4A, SV2-4B, SV2-5A, SV2-5B, SV2-6A, and SV2-6B, respectively.

Insignificant Activities

The source also consists of the following insignificant activities, as defined in 326 IAC 2-7-1(21):

Natural gas-fired combustion sources with a heat input less than 10 MMBtu/hr: two 2.0 MMBtu/hr, one (1) 6.6 MMBtu/hr, two (2) 4.4 MMBtu/hr, and twelve (12) 3.2 MMBtu/hr air-make-up units.

Source Definition

Pursuant to CP 039-8662-00017, issued January 9, 1998, Monaco Coach Corporation's Nelson's Parkway/400 Indiana Avenue Complex consists of the following plants:

(a) Plant 2: New Paint Facilities
(b) Plant 20: Welding and Laminating

(c) Plant 22: Metal Shop with a maximum throughput of 3.5 units per hour
(d) Plants 23 & 24: Normal maintenance operations
(e) Plant 25: Warehouse
(f) Plant 26: Undercoating
(g) Plant 27: Storage
(h) Plant 28: Formtec
(i) Plant 29: Research & development
(j) Plant 30: Motorized recreational vehicle assembly modified to increase maximum throughput to 3.5 units per hour
(k) Plant 31: Paint/preparation production and west slide-out assembly with a maximum throughput of 2.5 units per hour
(l) Plant 33: Compressor building
(m) Plant 34: Fire pump
(n) Plant 36: Fiberglass fabrication with a maximum throughput of 3.5 units per hour
(o) Plant 37: Fiberglass mold shop
(p) Plant 38: Research & development machine shop
(q) Plant 45: Print Shop
(r) Plant 46: Dispatch

Since these eighteen (18) plants are located in contiguous properties, have the same two-digit SIC codes and are owned by one company, they are considered as one (1) source.

Note that this Significant Source Modification (039-15620-00017) applies to Plant 2.

History

On December 12, 1996, Monaco submitted an application to the OAQ for a Part 70 permit. On January 9, 1998, Monaco was issued CP 039-8662-00017 which permitted the construction and operation of Plant 2 at the existing Wakarusa source. On May 15, 2001 Monaco was issued SSM 039-12758-00017 to add a barrier coat spray station to the Wakarusa source. On May 9, 2002, Monaco submitted an application for a PSD Significant Source Modification to the OAQ requesting to add additional surface coating booths to their existing Plant 2. A revised and updated application was received on June 11, 2002. A PSD modeling analysis was received on August 14, 2002.

Enforcement Issue

There are no enforcement actions pending.

Stack Summary of New Facilities

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (^{0}F)
SV2-27	surface coating	25	4	35,000	ambient
SV2-28		25	4	35,000	ambient
SV2-29		25	4	35,000	ambient
SV2-20		25	4	35,000	ambient
SV2-21		25	4	35,000	ambient
SV2-22		25	4	35,000	ambient
SV2-13		25	4	35,000	ambient
SV2-14		25	4	35,000	ambient
SV2-15		25	4	35,000	ambient
SV2-7		25	4	35,000	ambient

SV2-8		25	4	35,000	ambient
SV2-1		25	4	35,000	ambient
SV2-2		25	4	35,000	ambient

Recommendation

The staff recommends to the Commissioner that the Part 70 Significant Source Modification be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

An administratively incomplete application for the purposes of this review was received on May 9, 2002 and revised on June 11, 2002. Additional information was received on August 14, 2002, September 30, 2002, and October 16, 2002 which made the application administratively complete.

Emission Calculations

See Appendix A (pages 1 through 4) of this document for detailed emissions calculations.

Potential To Emit of Modification

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as "the maximum capacity of a stationary source to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA."

This table reflects the PTE before controls of the reconstructed/modified source (29 booths in Plant 2). Control equipment is not considered federally enforceable until it has been required in a federally enforceable permit.

Pollutant	Potential To Emit (tons/year)
PM	2.0
PM-10	2.0
SO_2	0.1
VOC	2884
CO	16
NO_x	19

HAP	Potential To Emit (tons/year)
Ethylbenzene	260
Methanol	210
Methy Ethyl Ketone	376
Methyl Isobutyl Ketone	176
Toluene	683
Xylene	597
TOTAL	2299

Justification for Modification

The Part 70 Operating permit is being modified through a Part 70 Significant Source Modification, pursuant to 326 IAC 2-7-10.5(f)(1), (f)(2), and (f)(4), because the modification's potential to emit VOC is greater than 25 tons per year and is subject to 326 IAC 8-1-6. This modification is also being performed pursuant to 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration) because the modification's potential to emit VOC is greater than the 40 ton per year significance threshold for a PSD major source.

County Attainment Status

The source is located in Elkhart County.

Pollutant	Status
PM-10	attainment
SO_2	attainment
NO_2	attainment
Ozone	maintenance attainment
CO	attainment
Lead	attainment

(a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Elkhart County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(b) Elkhart County has been classified as attainment or unclassifiable for PM-10, SO_2, NO_x, CO and lead. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

(c) Fugitive Emissions
Since this type of operation is not one of the 28 listed source categories under 326 IAC 2-2 and since there are no applicable New Source Performance Standards that were in effect on August 7, 1980, fugitive emissions are not counted toward determination of PSD and Emission Offset applicability.

Source Status

Existing Source PSD or Emission Offset Definition (emissions after controls, based upon 8760 hours of operation per year at rated capacity and/or as otherwise limited):

Pollutant	Emissions (tons/year)
PM	78.3
PM-10	78.3
SO_2	0.3
VOC	459.8
CO	11.2
NOx	47.9

(a) This existing source is a major stationary source because an attainment regulated

pollutant (VOC) is emitted at a rate of 250 tons per year or more, and it is not one of the 28 listed source categories.

(b) These emissions are based on the information provided in 039-15302-00017, issued May 30, 2002. Plants 20, 22, 26, 28, 29, 30, 31, 36, 37, 38, and 45 are limited to 249 tons per year pursuant to CP 039-7335-00017 and SPM 039-12758-00017. CP 039-8662-00017, issued January 9, 1998 allows Plant 2 to emit up to 210.8 tons VOC per year. Therefore, the existing source VOC PTE is equal to 459.8 tpy (249 + 210.8 = 459.8 tpy). Monaco has accepted a VOC usage limit of 539 tons per year for Plant 2. (Note that natural gas combustion generates an additional 1.4 tons per year of VOC emissions. Therefore, the total limited PTE for this source will be 540.4 tpy.) As a result, this modification increases the VOC PTE of Plant 2 by 329.6 tons per year (540.4 - 210.8 = 329.6 tpy).

Potential to Emit of Modification After Issuance

The table below summarizes the potential to emit, reflecting all limits, of the reconstructed/ modified source after controls. The control equipment is considered federally enforceable only after issuance of this Part 70 source modification.

Limited Potential to Emit (tons/year)							
Process/facility	PM	PM-10	SO_2	VOC	CO	NO_X	HAPs
Partial Paint Line A Full Paint Lines B, C, D, and E	2.5	2.5	0	539	0	0	245
Insignificant make-up-air units	1.9	1.9	0.2	1.4	21.3	25.3	Neg.
Total	4.4	4.4	0.2	540.4	21.3	25.3	245
PSD Significance Level	25	15	40	40	100	40	NA

Neg. - Negligible

Note that the limited potential to emit of each Full Paint line is difficult to determine as the source indicated that the Full Paint lines are not dedicated; i.e. they could serve as a 'red' or a 'blue' line. A Full Paint 'blue' line can apply more coating than a Full Paint 'red' line. The maximum capacity of the entire source is 1.25 'red' units per hour, and 0.75 'blue' units per hour. In addition, the post-BACT potential to emit VOC of partial paint line A and full paint lines B through E is equal to 539 tpy. As a result, the limited potential to emit of the paint lines are listed together and represents the PM, VOC and HAP PTE of those lines if the lines were to meet the allowable VOC usage limit using of low VOC/high solids coatings and dry filters for particulate control. See Appendix A for emission calculations, Appendix B for the BACT determination, Appendix C for the Air Quality Analysis, and Appendix D for a detailed cost analysis of the technically feasible control options.

This modification to an existing major stationary source is major because the emissions increase is greater than the PSD significant levels. Therefore, the modification is subject to the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration).

Federal Rule Applicability

(a) There are no New Source Performance Standards (NSPS)(326 IAC 12 and 40 CFR Part 60) applicable to this proposed modification.

(b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326

IAC 14 and 40 CFR Part 63) applicable to this proposed modification.

(c) The requirements of Section 112(j) of the Clean Air Act (40 CFR Part 63.50 through 63.56) are applicable to this source because the source is a major source of HAPs (i.e., the source has the potential to emit 10 tons per year or greater of a single HAP or 25 tons per year or greater of a combination of HAPs) and the source includes one or more units that belong to one or more source categories affected by the Section 112(j) Maximum Achievable Control Technology (MACT) Hammer date of May 15, 2002.

(1) This rule requires the source to:

(A) Submit a Part 1 MACT Application by May 15, 2002; and

(B) Submit a Part 2 MACT Application within twenty-four (24) months after the Permittee submitted a Part 1 MACT Application.

(2) The Permittee submitted a Part 1 MACT Application on May 14, 2002. Therefore, the Permittee is required to submit the Part 2 MACT Application on or before May 14, 2004. Note that on April 25, 2002, Earthjustice filed a lawsuit against the US EPA regarding the April 5, 2002 revisions to the rules implementing Section 112(j) of the Clean Air Act. In particular, Earthjustice is challenging the US EPA's 24-month period between the Part 1 and Part 2 MACT Application due dates. Therefore, the Part 2 MACT Application due date may be changed as a result of the suit. Based on a proposed settlement published in the August 26, 2002 *Federal Register*, it appears that US EPA intends to revise the rule so that the due date of the Part 2 MACT Application will be within twelve (12) months after the Permittee submitted the Part 1 MACT application.

(3) Pursuant to 40 CFR 63.56(a), the Permittee shall comply with an applicable promulgated MACT standard in accordance with the schedule provided in the MACT standard if the MACT standard is promulgated prior to the Part 2 MACT Application deadline or prior to the issuance of permit with a case-by-case Section 112(j) MACT determination. The MACT requirements include the applicable General Provisions requirements of 40 CFR 63, Subpart A. Pursuant to 40 CFR 63.9(b), the Permittee shall submit an initial notification not later than 120 days after the effective date of the MACT, unless the MACT specifies otherwise. The MACT and the General Provisions of 40 CFR 63, Subpart A will become new applicable requirements, as defined by 326 IAC 2-7-1(6), that must be incorporated into the Part 70 permit. After IDEM, OAQ receives the initial notification, any of the following will occur:

(A) If three or more years remain on the Part 70 permit term at the time the MACT is promulgated, IDEM, OAQ will notify the source that IDEM, OAQ will reopen the permit to include the MACT requirements pursuant to 326 IAC 2-7-9; or

(B) If less than three years remain on the Part 70 permit term at the time the MACT is promulgated, the Permittee must include information regarding the MACT in the renewal application, including the information required in 326 IAC 2-7-4(c); or

(C) The Permittee may submit an application for a significant permit modification under 326 IAC 2-7-12 to incorporate the MACT requirements. The application may include information regarding which portions of the

MACT are applicable to the emission units at the source and which compliance options will be followed.

(d) The booths included in this modification are not subject to the provisions of 40 CFR Part 64, Compliance Assurance Monitoring (CAM). In order for this rule to apply, a specific emissions unit must meet three criteria for a given pollutant: 1) the unit is subject to an emission limitation or standard for the applicable regulated air pollutant, 2) the unit uses a control device to achieve compliance with any such emission limitation or standard, and, 3) the unit has potential pre-control device emissions of the applicable regulated air pollutant that is equal or greater than 100 percent of the amount required for a source to be classifies as a major source. The paint lines created by this modification do have a potential pre-control device VOC emissions equal or greater than 100 percent of the amount required for a source to be classifies as a major source. However, the paint lines do not use a control device to comply with an emission limitation or standard. Therefore, 40 CFR Part 64 is not applicable to this modification or any part of it.

State Rule Applicability - Individual Facilities

326 IAC 2-2 (Prevention of Significant Deterioration)

This modification to a major PSD source will add thirteen (13) new booths to the source. These thirteen (13) new booths will be arranged with the sixteen (16) existing booths to: modify one (1) partial paint line (identified a Line A), modify two (2) full paint lines (identified as Lines D and E), and create two (2) full paint lines (identified as Lines B and C). To accommodate this change, each of the existing paint lines will be modified with the addition of several new booths and the rearrangement of several existing booths. The VOC potential to emit from the modification is greater than the 40 tons per year PSD significance threshold for VOC. As a result, this modification is subject to the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration).

326 IAC 2-2-3 (Prevention of Significant Deterioration: Best Available Control Technology)

Pursuant to 326 IAC 2-2-3, the source conducted a BACT analysis and submitted a PSD permit application for a PSD Significant Source Modification to permit the construction and operation of the thirteen (13) booths and the consequential operation of one (1) partial paint line and four (4) full paint lines. IDEM has determined that the utilization of low VOC/high solids coatings with high transfer application methods and a VOC usage limit will serve as BACT for this modification. (Note that the technical feasibility, cost per ton of pollutant removed, energy requirements, and environmental impacts were accounted for in IDEM's determination- see Appendix B for more information.)

Pursuant to 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration), the source must comply with the following requirements regarding the surface coating operations performed in Partial Paint Line A and Full Paint Lines B through E at Plant 2:

(a) Lacquer thinners and preparation cleaners and solvents used on motor home exteriors will be hand-wiped and contain a maximum 6.5 pounds VOC per gallon of coating as applied.

(b) Primers will be applied using high volume-low pressure (HVLP) spray equipment and contain a maximum of 3.5 pounds VOC per gallon of coating as applied.

(c) Base coats will be applied using HVLP spray equipment and contain a maximum VOC content of 6.5 pounds VOC per gallon of coating as applied.

(d) Clear coats will be applied using HVLP spray equipment and contain a maximum VOC content of 3.5 pounds VOC per gallon of coating as applied.

(e) Sealers will be applied using HVLP spray equipment and contain a maximum VOC content of 3.5 pounds VOC per gallon of coating as applied.

(f) The average VOC content for the base coat/clear coat system will contain a maximum VOC content of 4.5 pounds VOC per gallon of coating as applied. Compliance will be demonstrated on two parts clear coat and one part base coat.

(g) Good housekeeping practices will be employed to minimize leaks, spills, and evaporative losses. These include: sealing lids on all containers not in use or in storage, the purging of guns and lines into approved containers, maintaining an organized spill response and clean-up operation, performing routine maintenance on spray equipment and pumps to prevent drips and seal leaks, the use of solvent recovery systems to recover reusable solvents for on-site or off-site recycling, and using aqueous, exempt solvents or citric cleaners where effective and practical.

(h) All primers, base coats, and clear coats used in the repair booths will be applied with air-atomized spray equipment.

(i) Motor home exteriors will be hand-wiped with cleaning solvent prior to painting.

(j) Collected solvents will be recycled on-site and off-site to recover reusable solvents and minimize waste.

(k) Motor homes will be undercoated with a waterborne-low VOC coating.

(l) The surface coating operations shall use less than 539 tons of VOC, including coatings, dilution solvents, and cleaning solvents, per twelve (12) consecutive month period with compliance determined at the end of each month.

The VOC usage limit, in conjunction with the usage of low VOC/high solids coatings and high transfer application methods listed in (a) through (k) above and the VOC emissions from the insignificant natural gas fired air-make-up units, has been incorporated to limit the potential to emit VOC from Plant 2 to less than 540.4 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these requirements and limits will satisfy the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration).

326 IAC 2-2-4 and 326 IAC 2-2-5 (Prevention of Significant Deterioration: Air Quality Analysis and Impact)

Pursuant to 326 IAC 2-2, a modeling study was performed using the US EPA's Reactive Plume Model (RPM-IV) in order to determine the magnitude and impact of VOC emissions from the modification on ambient ozone levels. The study, provided to the OAQ on August 14, 2002, and later re-completed by the OAQ, reviewed the impact of VOC emissions after the utilization of BACT for this modification. The maximum difference in the RPM-IV modeled ozone concentrations between the ambient mode and plume-injected mode was 3.8 ppb. The addition of a 3.8 ppb source to the monitor design value of 84 equals a value of 87 ppb; less than the NAAQS for ozone of 120 ppb. Other monitors in the area (St. Joseph County) showed a design value of 102 ppb. The added impact of 3.8 ppb to 102 ppb equals 105.8 ppb; also less than the NAAQS for ozone of 120 ppb. As a result, the OAQ has determined that the ozone impact from Monaco's modification is expected to have a minimal impact on ozone concentrations and air quality in the surrounding area. See Appendix C for more information.

326 IAC 2-2-6 (Prevention of Significant Deterioration: Increment Consumption)

Pursuant to 326 IAC 2-2-6(a), a demonstration of increment consumption is not required for a PSD

major source of VOC emissions.

326 IAC 2-2-7 (Prevention of Significant Deterioration: Additional Analyses)

Emissions associated with this modification are primarily volatile organic compounds (VOC) that quickly breakdown in normal atmospheric conditions. A search of available research on vegetation and soil impacts associated with VOC, ozone and specific chemical species associate with the proposed paint expansion has shown no evidence of soil accumulation or vegetation impacts for concentrations in the subparts per million range. The nearest Class I area to Monaco is the Mammoth Cave National Park located approximately 540 kilometers southeast in Kentucky. Monaco is located well beyond 100 kilometers from Mammoth Cave National Park and will not have significant impact on the Class I area. The results of the additional impact analysis conclude the Monaco's modification will have no adverse impact on economic growth, soils, vegetation, and endangered or threatened species. See Appendix C for more information.

326 IAC 2-4.1 (Hazardous Air Pollutants- Maximum Achievable Control Technology)

Partial paint Line A, full paint line D and full paint line E are existing lines that will be rearranged and modified as a result of this modification. As a result, these lines are not new or reconstructed sources and are not subject to 326 IAC 2-4.1. However, booths SV2-20, SV2-21, SV2-22, SV2-13, SV2-14, and SV2-15 will be combined with existing spray booths from an existing partial paint line to form new Full Paint lines B and C. This reconstruction of a process or production unit has the potential to emit greater than 25 tons per year of any combination of HAPs and will occur after July 27, 1997. As a result, Full Paint Lines B and C are subject to the requirements of 326 IAC 2-4.1 and must utilize the Maximum Achievable Control Technology (MACT) for these operations. All of the HAPs emitted by the reconstruction of Full Paint Lines B and C are volatile organic compounds (VOC) and any reduction in VOC from the use of BACT will also cause a reduction in HAPs. Therefore, IDEM has determined that BACT for this reconstruction will serve as MACT. See Appendix B for more information.

The OAQ used the Industrial Source Complex Short Term (ISCST3) model, BEEST Version 8.75 to determine maximum off-property concentrations or impacts for each HAP. Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker's exposure to a pollutant over an 8-hour work day or a 40-hour work week. All HAP concentrations were modeled below 0.5% of their respective PEL. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population. A health risk-based analysis was not performed because none of the above HAPs had a NATA/CEP benchmark associated with it. See Appendix C for more information.

326 IAC 6-3-2 (Process Operations)

On June 12, 2002, revisions to 326 IAC 6-3 (Particulate Emission Limitations for Manufacturing Processes) became effective; this rule was previously refered to as 326 IAC 6-3 (Process Operations). As of the date this permit is being issued these revisions have not been approved by EPA into the Indiana State Implementation Plan (SIP); therefore, the following requirement from the previous version of 326 IAC 6-3 (Process Operations) which has been approved into the SIP will remain as the applicable requirement until the revisions to 326 IAC 6-3 are approved into the SIP and the condition is modified in a subsequent permit action.

Pursuant to 40 CFR Part 52 Subpart P, the particulate matter (PM) from the surface coating operations and shall be limited by the following:

Interpolation of the data for the process weight rate up to sixty thousand (60,000) pounds per hour shall be accomplished by use of the equation:

$E = 4.10 P^{0.67}$ where E = rate of emission in pounds per hour and
P = process weight rate in tons per hour

Under the rule revision, particulate from the surface coating operations shall be controlled by a dry particulate filter and the Permittee shall operate the control device in accordance with manufacturer's specifications.

326 IAC 8-1-6 (Volatile Organic Compounds- BACT)

This modification is subject to 326 IAC 8-1-6 because it has the potential to emit greater than 25 tons per year VOC, will be completed after January 1, 1980. Therefore, pursuant to 326 IAC 8-1-6, the modification must reduce VOC emissions using the Best Available Control Technology (BACT). This requirement will be satisfied by complying with 326 IAC 2-2-3 (Prevention of Significant Deterioration). IDEM has determined that BACT for this modification is the use of low VOC/high solids coatings with high transfer application methods and limits on VOC usage. See Appendix B for more information.

326 IAC 8-2-9 (Miscellaneous Metal Coating Operations)

None of the facilities listed as part of this modification are subject to the requirements of 326 IAC 8-2-9 because, pursuant to 326 IAC 8-2-9(b)(4), each facility has a maximum capacity less than thirty-five (35) vehicles (motor homes) per day.

Testing Requirements

Each booth exhausts to individual stacks and does not have the potential to emit VOC greater than 40% of the source's total potential to emit VOC. Compliance with BACT shall be demonstrated through the use of appropriate record keeping. Furthermore, there are no applicable regulations, for any pollutant, for which testing would provide additional compliance determination data. As a result, testing is not required for any of the facilities included in this modification.

Compliance Requirements

Permits issued under 326 IAC 2-7 are required to ensure that sources can demonstrate compliance with applicable state and federal rules on a more or less continuous basis. All state and federal rules contain compliance provisions, however, these provisions do not always fulfill the requirement for a more or less continuous demonstration. When this occurs IDEM, OAQ, in conjunction with the source, must develop specific conditions to satisfy 326 IAC 2-7-5. As a result, compliance requirements are divided into two sections: Compliance Determination Requirements and Compliance Monitoring Requirements.

Compliance Determination Requirements in Section D of the permit are those conditions that are found more or less directly within state and federal rules and the violation of which serves as grounds for enforcement action. If these conditions are not sufficient to demonstrate continuous compliance, they will be supplemented with Compliance Monitoring Requirements, also Section D of the permit. Unlike Compliance Determination Requirements, failure to meet Compliance Monitoring conditions would serve as a trigger for corrective actions and not grounds for enforcement action. However, a violation in relation to a compliance monitoring condition will arise through a source's failure to take the appropriate corrective actions within a specific time period.

The compliance monitoring requirements applicable to this modification are as follows:

The Permittee shall implement an operator training program.

(a) All operators that perform surface coating operations using spray equipment or booth maintenance shall be trained in the proper set-up and operation of the particulate control

system. All existing operators shall be trained within 60 days of the date of permit issuance. All new operators shall be trained upon hiring or transfer.

(b) Training shall include proper filter alignment, filter inspection and maintenance, and trouble shooting practices. The training program shall be written and retained on site. The training program shall include a description of the methods to be used at the completion of initial and refresher training to demonstrate and document successful completion. Copies of the training program, the list of trained operators and training records shall be maintained on site or available within 1 hour for inspection by IDEM.

(c) All operators shall be given refresher training annually.

Additional inspections and preventive measures shall be performed as prescribed in the Preventive Maintenance Plan.

These monitoring conditions are necessary because the dry filters must operate properly to ensure compliance with 326 IAC 6-3-2 (Process Operations).

Conclusion

The construction of this proposed modification shall be subject to the conditions of the attached proposed PSD Part 70 Significant Source Modification No. 039-15620-00017.

Appendix A: Potential Emissions Calculations
VOC and Particulate
From Surface Coating Operations

Company Name: Monaco Coach Corporation, Plant 2
Address City IN Zip: 606 Nelson's Parkway, Wakarusa, IN 46573
Permit Number: 039-15620-00017
Reviewer: ERG/BS
Date: 10/31/02

Material (Worst case coating AS APPLIED)	Density (Lb/Gal)	Weight % Volatile (H20 & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	**VOC Potential to Emit (ton/yr)**	lb VOC/ gal solids	Transfer Efficiency	Control Efficiency (dry filters)	**PM Potential to Emit (ton/yr)**
Line 1 Partial paint: booths SV2-27 through SV2-29																
Basecoat 1 BC120	6.20	100.00%	0.00%	100.00%	0.00%	21.00%	2.90	1.25	6.20	6.20	22.48	98.44	29.52	50%	98%	0.00
Basecoat reducer br-50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	1.00	1.25	7.40	7.40	9.25	40.52	#DIV/0!	50%	98%	0.00
Clearcoat 2 lc1300	7.83	70.00%	0.00%	70.00%	0.00%	24.00%	5.60	1.25	5.48	5.48	38.37	168.05	22.84	50%	98%	0.72
clearcoat reducer lr12	7.32	100.00%	0.00%	100.00%	0.00%	0.00%	0.70	1.25	7.32	7.32	6.41	28.05	#DIV/0!	50%	98%	0.00
Sealer 3 -934	7.26	95.00%	0.00%	95.00%	0.00%	4.00%	0.80	1.25	6.90	6.90	6.90	30.21	172.43	50%	98%	0.02
Primer 4 864	7.29	95.00%	0.00%	95.00%	0.00%	5.00%	0.01	1.25	6.93	6.93	0.09	0.38	138.51	50%	98%	0.00
Primer reducer -br50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	0.10	1.25	7.40	7.40	0.93	4.05	#DIV/0!	50%	98%	0.00
Prep solvent - 2250	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	1.00	1.25	7.04	7.04	8.80	38.54	#DIV/0!	50%	98%	0.00
Clean up solvent dt-10	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	1.00	1.25	7.04	7.04	8.80	38.54	#DIV/0!	100%	0%	0.00
Lines 2-3 Full Paint Red: booths SV2-1 through SV2-26																
Basecoat 1 BC120	6.20	100.00%	0.00%	100.00%	0.00%	21.00%	11.50	1.25	6.20	6.20	89.13	390.37	29.52	50%	98%	0.00
Basecoat reducer br-50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	8.00	1.25	7.40	7.40	74.00	324.12	#DIV/0!	50%	98%	0.00
Clearcoat 2 lc1300	7.83	70.00%	0.00%	70.00%	0.00%	24.00%	6.75	1.25	5.48	5.48	46.25	202.56	22.84	50%	98%	0.87
clearcoat reducer lr12	7.32	100.00%	0.00%	100.00%	0.00%	0.00%	5.00	1.25	7.32	7.32	45.75	200.39	#DIV/0!	50%	98%	0.00
Sealer 3 -934	7.26	95.00%	0.00%	95.00%	0.00%	4.00%	1.00	1.25	6.90	6.90	8.62	37.76	172.43	50%	98%	0.02
Primer 4 864	7.29	95.00%	0.00%	95.00%	0.00%	5.00%	0.50	1.25	6.93	6.93	4.33	18.96	138.51	50%	98%	0.01
Primer reducer -br50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	0.50	1.25	7.40	7.40	4.63	20.26	#DIV/0!	50%	98%	0.00
Prep solvent - 2250	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	2.75	1.25	7.04	7.04	24.20	106.00	#DIV/0!	50%	98%	0.00
Clean up solvent dt-10	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	3.20	1.25	7.04	7.04	28.16	123.34	#DIV/0!	100%	0%	0.00
Lines 4-5 Full Paint Blue: booths SV2-1 through SV2-26																
Basecoat 1 BC120	6.20	100.00%	0.00%	100.00%	0.00%	21.00%	16.10	0.75	6.20	6.20	74.87	327.91	29.52	50%	98%	0.00
Basecoat reducer br-50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	5.00	0.75	7.40	7.40	27.75	121.55	#DIV/0!	50%	98%	0.00
Clearcoat 2 lc1300	7.83	70.00%	0.00%	70.00%	0.00%	24.00%	11.00	0.75	5.48	5.48	45.22	198.06	22.84	50%	98%	0.85
clearcoat reducer lr12	7.32	100.00%	0.00%	100.00%	0.00%	0.00%	4.00	0.75	7.32	7.32	21.96	96.18	#DIV/0!	50%	98%	0.00
Sealer 3 -934	7.26	95.00%	0.00%	95.00%	0.00%	4.00%	1.40	0.75	6.90	6.90	7.24	31.72	172.43	50%	98%	0.02
Primer 4 864	7.29	95.00%	0.00%	95.00%	0.00%	5.00%	0.50	0.75	6.93	6.93	2.60	11.38	138.51	50%	98%	0.01
Primer reducer -br50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	0.53	0.75	7.40	7.40	2.91	12.76	#DIV/0!	50%	98%	0.00
Prep solvent - 2250	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	7.00	0.75	7.04	7.04	36.96	161.88	#DIV/0!	50%	98%	0.00
Clean up solvent dt-10	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	2.20	0.75	7.04	7.04	11.62	50.88	#DIV/0!	100%	0%	0.00
											TOTAL POTENTIAL TO EMIT (ton/yr) =	**2882.84**				**2.51**

Note that emissions from the repair/finish line are not included as that line is not being modifed during this review.

The potential to emit of each Full Paint line is difficult to determine as the source indicated that the Full Paint lines are not dedicated; i.e. they could serve as a 'red' or a 'blue' line. A Full Paint 'blue' unit requires more coating than a Full Paint 'red' unit. The maximum capacity of the entire source is 1.25 'red' units per hour, and 0.75 'blue' units per hour.

Clean up solvent is applied by hand and therefore has an estimated transfer efficiency of 100%

The booths use HVLP guns with an estimated transfer efficiency of 50%.

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

Appendix A: Emission Calculations
HAP Emission Calculations from Surface Coating

Company Name: Monaco Coach Corporation, Plant 2
Address City IN Zip: 606 Nelson's Parkway, Wakarusa, IN 46573
Permit Number: 039-15620-00017
Reviewer: ERG/BS
Date: 10/31/02

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/hour)	Weight % Ethyl Benzene	Weight % 1,2,4 Trimethyl benzene	Weight % Methanol	Weight % MEK	Weight % Methyl Isobutyl Ketone	Weight % Toluene	Weight % Xylene	Ethyl Benzene Emissions (ton/yr)	Methanol Emissions (ton/yr)	MEK Emissions (ton/yr)	Methyl Isobutyl Ketone Emissions (ton/yr)	Toluene Emissions (ton/yr)	Xylene Emissions (ton/yr)	
Line 1 Partial paint: booths SV2-27 through SV2-29																	
Basecoat 1 BC120	6.20	2.90	1.250	3.00%	0.00%	16.06%	42.98%	20.00%	0.00%	20.00%	2.95	15.81	42.31	19.69	0.00	19.69	
Basecoat reducer br-50	7.40	1.00	1.250	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	8.10	8.10	
Clearcoat 2 lc1300	7.83	5.60	1.250	3.00%	3.00%	0.00%	3.00%	1.56%	20.00%	15.00%	7.20	0.00	7.20	3.73	48.01	36.01	
clearcoat reducer lr12	7.32	0.70	1.250	9.00%	0.00%	0.00%	0.00%	0.00%	42.00%	38.00%	2.52	0.00	0.00	0.00	11.78	10.66	
Sealer 3 -934	7.26	0.80	1.250	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	70.00%	7.95	0.00	0.00	0.00	0.00	22.26	
Primer 4 864	7.29	0.01	1.250	6.00%	0.00%	0.00%	0.00%	0.00%	60.00%	30.00%	0.02	0.00	0.00	0.00	0.24	0.12	
Primer reducer -br50	7.40	0.10	1.250	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	0.81	0.81	
Prep solvent - 2250	7.04	1.00	1.250	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	19.27	0.00	0.00	0.00	19.27	0.00	
Clean up solvent dt-10	7.04	1.00	1.250	0.00%	0.00%	36.80%	0.00%	0.00%	50.00%	0.00%	0.00	14.18	0.00	0.00	19.27	0.00	
Lines 2-3 Full Paint Red: booths SV2-1 through SV2-26										**subtotal**	39.93	29.99	49.51	23.42	107.49	97.65	
Basecoat 1 BC120	6.20	11.50	1.250	3.00%	0.00%	16.06%	42.98%	20.00%	0.00%	20.00%	11.71	62.69	167.78	78.07	0.00	78.07	
Basecoat reducer br-50	7.40	8.00	1.250	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	64.82	64.82	
Clearcoat 2 lc1300	7.83	6.75	1.250	3.00%	3.00%	0.00%	3.00%	1.56%	20.00%	15.00%	8.68	0.00	8.68	4.50	57.87	43.41	
clearcoat reducer lr12	7.32	5.00	1.250	9.00%	0.00%	0.00%	0.00%	0.00%	42.00%	38.00%	18.03	0.00	0.00	0.00	84.16	76.15	
Sealer 3 -934	7.26	1.00	1.250	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	70.00%	9.94	0.00	0.00	0.00	0.00	27.82	
Primer 4 864	7.29	0.50	1.250	6.00%	0.00%	0.00%	0.00%	0.00%	60.00%	30.00%	1.20	0.00	0.00	0.00	11.97	5.99	
Primer reducer -br50	7.40	0.50	1.250	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	4.05	4.05	
Prep solvent - 2250	7.04	2.75	1.250	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	53.00	0.00	0.00	0.00	53.00	0.00	
Clean up solvent dt-10	7.04	3.20	1.250	0.00%	0.00%	36.80%	0.00%	0.00%	50.00%	0.00%	0.00	45.39	0.00	0.00	61.67	0.00	
Lines 4-5 Full Paint Blue: booths SV2-1 through SV2-26										**subtotal**	102.56	108.08	176.46	82.57	337.55	300.31	
Basecoat 1 BC120	6.20	16.10	0.750	3.00%	0.00%	16.06%	42.98%	20.00%	0.00%	20.00%	9.84	52.66	140.94	65.58	0.00	65.58	
Basecoat reducer br-50	7.40	5.00	0.750	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	24.31	24.31	
Clearcoat 2 lc1300	7.83	11.00	0.750	3.00%	3.00%	0.00%	3.00%	1.56%	20.00%	15.00%	8.49	0.00	8.49	4.40	56.59	42.44	
clearcoat reducer lr12	7.32	4.00	0.750	9.00%	0.00%	0.00%	0.00%	0.00%	42.00%	38.00%	8.66	0.00	0.00	0.00	40.40	36.55	
Sealer 3 -934	7.26	1.40	0.750	25.00%	0.00%	0.00%	0.00%	0.00%	0.00%	70.00%	8.35	0.00	0.00	0.00	0.00	23.37	
Primer 4 864	7.29	0.50	0.750	6.00%	0.00%	0.00%	0.00%	0.00%	60.00%	30.00%	0.72	0.00	0.00	0.00	7.18	3.59	
Primer reducer -br50	7.40	0.53	0.750	0.00%	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	2.55	2.55	
Prep solvent - 2250	7.04	7.00	0.750	50.00%	0.00%	0.00%	0.00%	0.00%	50.00%	0.00%	80.94	0.00	0.00	0.00	80.94	0.00	
Clean up solvent dt-10	7.04	2.20	0.750	0.00%	0.00%	36.80%	0.00%	0.00%	50.00%	0.00%	0.00	18.72	0.00	0.00	25.44	0.00	
										subtotal	116.99	71.39	149.42	69.98	237.41	198.40	
										TOTAL POTENTIAL TO EMIT (ton/yr) =	**259.47**	**209.46**	**375.40**	**175.98**	**682.46**	**596.36**	**2299.13**

The potential to emit of each Full Paint line is difficult to determine as the source indicated that the Full Paint lines are not dedicated; i.e. they could serve as a 'red' or a 'blue' line. A Full Paint 'blue' unit requires more coating than a Full Paint 'red' unit. The maximum capacity of the entire source is 1.25 'red' units per hour, and 0.75 'blue' units per hour.

Clean up solvent is applied by hand and therefore has an estimated transfer efficiency of 100%

The booths use HVLP guns with an estimated transfer efficiency of 50%.

METHODOLOGY

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

Appendix A: Controlled VOC Emissions Calculations
From Surface Coating Operations

Company Name: **Monaco Coach Corporation, Plant 2**
Address City IN Zip: **606 Nelson's Parkway, Wakarusa, IN 46573**
Permit Number: **039-15620-00017**
Reviewer: **ERG/BS**
Date: **10/31/02**

Material (based on VOC content limits)	Density (Lb/Gal)	Weight % Volatile (H20 & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Material (gal/unit)	Maximum (unit/hour) **	Pounds VOC per gallon of coating	Limited pounds VOC per gallon of coating	Controlled VOC pounds per hour	Controlled VOC pounds per unit	Controlled VOC tons per year	lb VOC per gal solids	Estimated lb VOC per unit
Line 1 Partial paint: booths SV2-27 through SV2-29															
Basecoat 1 BC120	6.20	100.00%	0.00%	100.00%	0.00%	21.00%	2.90	NA	6.20	6.50	#VALUE!	18.85	#VALUE!	29.52	
Basecoat reducer br-50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	1.00	NA	7.40	6.50	#VALUE!	6.50	#VALUE!	#DIV/0!	
Clearcoat 2 lc1300	7.83	70.00%	0.00%	70.00%	0.00%	24.00%	5.60	NA	5.48	3.50	#VALUE!	19.60	#VALUE!	22.84	
clearcoat reducer lr12	7.32	100.00%	0.00%	100.00%	0.00%	0.00%	0.70	NA	7.32	3.50	#VALUE!	2.45	#VALUE!	#DIV/0!	
Sealer 3 -934	7.26	95.00%	0.00%	95.00%	0.00%	4.00%	0.80	NA	6.90	3.50	#VALUE!	2.80	#VALUE!	172.43	63.59
Primer 4 864	7.29	95.00%	0.00%	95.00%	0.00%	5.00%	0.01	NA	6.93	3.50	#VALUE!	0.04	#VALUE!	138.51	
Primer reducer -br50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	0.10	NA	7.40	3.50	#VALUE!	0.35	#VALUE!	#DIV/0!	
Prep solvent - 2250	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	1.00	NA	7.04	6.50	#VALUE!	6.50	#VALUE!	#DIV/0!	
Clean up solvent dt-10	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	1.00	NA	7.04	6.50	#VALUE!	6.50	#VALUE!	#DIV/0!	
Lines 2-3 Full Paint Red: booths SV2-1 through SV2-26															
Basecoat 1 BC120	6.20	100.00%	0.00%	100.00%	0.00%	21.00%	11.50	NA	6.20	6.50	#VALUE!	74.75	#VALUE!	29.52	
Basecoat reducer br-50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	8.00	NA	7.40	6.50	#VALUE!	52.00	#VALUE!	#DIV/0!	
Clearcoat 2 lc1300	7.83	70.00%	0.00%	70.00%	0.00%	24.00%	6.75	NA	5.48	3.50	#VALUE!	23.63	#VALUE!	22.84	
clearcoat reducer lr12	7.32	100.00%	0.00%	100.00%	0.00%	0.00%	5.00	NA	7.32	3.50	#VALUE!	17.50	#VALUE!	#DIV/0!	
Sealer 3 -934	7.26	95.00%	0.00%	95.00%	0.00%	4.00%	1.00	NA	6.90	3.50	#VALUE!	3.50	#VALUE!	172.43	213.55
Primer 4 864	7.29	95.00%	0.00%	95.00%	0.00%	5.00%	0.50	NA	6.93	3.50	#VALUE!	1.75	#VALUE!	138.51	
Primer reducer -br50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	0.50	NA	7.40	3.50	#VALUE!	1.75	#VALUE!	#DIV/0!	
Prep solvent - 2250	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	2.75	NA	7.04	6.50	#VALUE!	17.88	#VALUE!	#DIV/0!	
Clean up solvent dt-10	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	3.20	NA	7.04	6.50	#VALUE!	20.80	#VALUE!	#DIV/0!	
Lines 4-5 Full Paint Blue: booths SV2-1 through SV2-26															
Basecoat 1 BC120	6.20	100.00%	0.00%	100.00%	0.00%	21.00%	16.10	NA	6.20	6.50	#VALUE!	104.65	#VALUE!	29.52	
Basecoat reducer br-50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	5.00	NA	7.40	6.50	#VALUE!	32.50	#VALUE!	#DIV/0!	
Clearcoat 2 lc1300	7.83	70.00%	0.00%	70.00%	0.00%	24.00%	11.00	NA	5.48	3.50	#VALUE!	38.50	#VALUE!	22.84	
clearcoat reducer lr12	7.32	100.00%	0.00%	100.00%	0.00%	0.00%	4.00	NA	7.32	3.50	#VALUE!	14.00	#VALUE!	#DIV/0!	
Sealer 3 -934	7.26	95.00%	0.00%	95.00%	0.00%	4.00%	1.40	NA	6.90	3.50	#VALUE!	4.90	#VALUE!	172.43	257.94
Primer 4 864	7.29	95.00%	0.00%	95.00%	0.00%	5.00%	0.50	NA	6.93	3.50	#VALUE!	1.75	#VALUE!	138.51	
Primer reducer -br50	7.40	100.00%	0.00%	100.00%	0.00%	0.00%	0.53	NA	7.40	3.50	#VALUE!	1.84	#VALUE!	#DIV/0!	
Prep solvent - 2250	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	7.00	NA	7.04	6.50	#VALUE!	45.50	#VALUE!	#DIV/0!	
Clean up solvent dt-10	7.04	100.00%	0.00%	100.00%	0.00%	0.00%	2.20	NA	7.04	6.50	#VALUE!	14.30	#VALUE!	#DIV/0!	

TOTAL POTENTIAL TO EMIT (after controls) (ton/yr) ** = **539.00**

Note that emissions from the repair/finish line are not included as that line is not being modifed during this review.

Estimated % reduction = **81.30**

The potential to emit of each Full Paint line is difficult to determine as the source indicated that the Full Paint lines are not dedicated; i.e. they could serve as a 'red' or a 'blue' line. A Full Paint 'blue' unit requires more coating than a Full Paint 'red' unit. The maximum capacity of the entire source is 1.25 'red' units per hour, and 0.75 'blue' units per hour.

Clean up solvent is applied by hand and therefore has an estimated transfer efficiency of 100%

The booths use HVLP guns with an estimated transfer efficiency of 50%.

** Note that the source accepted a VOC usage limit of 539 tons per year.

METHODOLOGY

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)

Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)

Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr)

Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)

Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

Total = Worst Coating + Sum of all solvents used

Estimated % reduction = (uncontrolled VOC PTE - controlled VOC PTE)/uncontrolled VOC PTE

Appendix A: Controlled HAP Emission Calculations
from Surface Coating Operations

Company Name: **Monaco Coach Corporation, Plant 2**
Address City IN Zip: **606 Nelson's Parkway, Wakarusa, IN 46573**
Permit Number: **039-15620-00017**
Reviewer: **ERG/BS**
Date: **10/31/02**

Material	Density (Lb/Gal)	Gallons of Material (gal/unit)	Maximum (unit/year)	Weight % Ethyl Benzene	Weight % Methanol	Weight % MEK	Weight % Methyl Isobutyl Ketone	Weight % Toluene	Weight % Xylene	Ethyl Benzene Emissions (ton/yr)	Methanol Emissions (ton/yr)	MEK Emissions (ton/yr)	Methyl Isobutyl Ketone Emissions (ton/yr)	Toluene Emissions (ton/yr)	Xylene Emissions (ton/yr)	
Line 1 Partial paint: booths SV2-27 through SV2-29																
Basecoat 1 BC120	6.20	2.90	0.000	3.00%	0.00%	0.00%	20.00%	0.00%	20.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Basecoat reducer br-50	7.40	1.00	0.000	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Clearcoat 2 lc1300	7.83	5.60	0.000	3.00%	0.00%	3.00%	0.00%	20.00%	15.00%	0.00	0.00	0.00	0.00	0.00	0.00	
clearcoat reducer lr12	7.32	0.70	0.000	9.00%	0.00%	0.00%	0.00%	42.00%	38.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Sealer 3 -934	7.26	0.80	0.000	15.00%	0.00%	0.00%	0.00%	0.00%	76.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Primer 4 864	7.29	0.01	0.000	6.00%	0.00%	0.00%	0.00%	60.00%	30.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Primer reducer -br50	7.40	0.10	0.000	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Prep solvent - 2250	7.04	1.00	0.000	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Clean up solvent dt-10	7.04	1.00	0.000	0.00%	19.00%	0.00%	0.00%	67.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Lines 2-3 Full Paint Red: booths SV2-1 through SV2-26																
Basecoat 1 BC120	6.20	11.50	5048.0	3.00%	0.00%	0.00%	20.00%	0.00%	20.00%	5.40	0.00	0.00	35.99	0.00	35.99	
Basecoat reducer br-50	7.40	8.00	5048.0	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	29.88	29.88	
Clearcoat 2 lc1300	7.83	6.75	5048.0	3.00%	0.00%	3.00%	0.00%	20.00%	15.00%	4.00	0.00	4.00	0.00	26.68	20.01	
clearcoat reducer lr12	7.32	5.00	5048.0	9.00%	0.00%	0.00%	0.00%	42.00%	38.00%	8.31	0.00	0.00	0.00	38.80	35.10	
Sealer 3 -934	7.26	1.00	5048.0	15.00%	0.00%	0.00%	0.00%	0.00%	76.00%	2.75	0.00	0.00	0.00	0.00	13.93	
Primer 4 864	7.29	0.50	5048.0	6.00%	0.00%	0.00%	0.00%	60.00%	30.00%	0.55	0.00	0.00	0.00	5.52	2.76	
Primer reducer -br50	7.40	0.50	5048.0	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	1.87	1.87	
Prep solvent - 2250	7.04	2.75	5048.0	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	24.43	0.00	0.00	0.00	24.43	0.00	
Clean up solvent dt-10	7.04	3.20	5048.0	0.00%	19.00%	0.00%	0.00%	67.00%	0.00%	0.00	10.80	0.00	0.00	38.10	0.00	
Lines 4-5 Full Paint Blue: booths SV2-1 through SV2-26																
Basecoat 1 BC120	6.20	16.10	0.000	3.00%	0.00%	0.00%	20.00%	0.00%	20.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Basecoat reducer br-50	7.40	5.00	0.000	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Clearcoat 2 lc1300	7.83	11.00	0.000	3.00%	0.00%	3.00%	0.00%	20.00%	15.00%	0.00	0.00	0.00	0.00	0.00	0.00	
clearcoat reducer lr12	7.32	4.00	0.000	9.00%	0.00%	0.00%	0.00%	42.00%	38.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Sealer 3 -934	7.26	1.40	0.000	15.00%	0.00%	0.00%	0.00%	0.00%	76.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Primer 4 864	7.29	0.50	0.000	6.00%	0.00%	0.00%	0.00%	60.00%	30.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Primer reducer -br50	7.40	0.53	0.000	0.00%	0.00%	0.00%	0.00%	20.00%	20.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Prep solvent - 2250	7.04	7.00	0.000	50.00%	0.00%	0.00%	0.00%	50.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	
Clean up solvent dt-10	7.04	2.20	0.000	0.00%	19.00%	0.00%	0.00%	67.00%	0.00%	0.00	0.00	0.00	0.00	0.00	0.00	
																TOTAL
								TOTAL POTENTIAL TO EMIT (ton/yr) =		**45.45**	**10.80**	**4.00**	**35.99**	**165.28**	**139.54**	**401.07**
														production increase (%) =		**61.1%**
								post BACT HAP Increase (ton/yr) =		**27.76**	**6.60**	**2.44**	**21.98**	**100.95**	**85.23**	**244.96**

The potential to emit of each Full Paint line is difficult to determine as the source indicated that the Full Paint lines are not dedicated; i.e. they could serve as a 'red' or a 'blue' line. A Full Paint 'blue' unit requires more coating than a Full Paint 'red' unit. The maximum capacity of the entire source is 1.25 'red' units per hour, and 0.75 'blue' units per hour.

Clean up solvent is applied by hand and therefore has an estimated transfer efficiency of 100%

The booths use HVLP guns with an estimated transfer efficiency of 50%.

Units coated in the red full paint line have the worst case HAP PTE. As a result, the controlled HAP PTE is calculated assuming that the VOC usage limit will be consumed by the production of units coated from the red full paint line only.

METHODOLOGY

Maximum (unit/hr) = total VOC usage (539 ton VOC/yr) x 2000 lb/ton x 1/213.55 red unit/lb VOC
HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs
post-BACT emission increase (tons/yr) = HAPS emission rate (tons/yr) * post-BACT VOC increase (tons/yr) / total post-BACT VOC PTE

Appendix A: Emissions Calculations
Natural Gas Combustion from Air Make-up Units
MM BTU/HR <100

Company Name: Monaco Coach Corporation, Plant 2
Address City IN Zip: 606 Nelson's Parkway, Wakarusa, IN 46573
Permit Number: 039-15620-00017
Reviewer: ERG/BS
Date: 10/31/02

Aggregate Heat Input Capacity MMBtu/hr	Potential Throughput MMCF/yr
57.8	506.3

	Pollutant					
	PM*	PM10*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	7.6	7.6	0.6	100.0	5.5	84.0
Potential Emission in tons/yr	1.9	1.9	0.2	25.3	1.4	21.3

**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

Methodology
All emission factors are based on normal firing.
MMBtu = 1,000,000 Btu
MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
Emission Factors are from AP 42, Chapter 1.4
Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Appendix B
December 11, 2002

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) AND MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY (MACT) DETERMINATION

Source Background and Description

Source Name:	Monaco Coach Corporation
Source Location:	Plant 2, 606 Nelson's Parkway, Wakarusa, IN 46573
County:	Elkhart
SIC Code:	3716
Operation Permit No.:	T039-7559-00017
Operation Permit Issuance Date: not yet issued	
Significant Source Modification No.:	039-15620-00017
Permit Reviewer:	ERG/BS

The Indiana Department of Environmental Management (IDEM) has performed the following federal BACT review for a major modification to an existing surface coating source owned and operated by Monaco Coach Corporation (Monaco), located in Wakarusa, Indiana. Monaco assembles and paints high-quality, luxury motor homes that vary in floor plan and length. Monaco currently operates two (2) partial paint lines, two (2) full paint lines, and one (1) repair line at their Plant 2 site. This modification will add thirteen (13) new booths to the source. These thirteen (13) new booths will be arranged with sixteen (16) existing booths to: modify one (1) partial paint line (identified a Line A), modify two (2) existing full paint lines (identified as Lines D and E), and create two new (2) full paint lines (identified as Lines B and C). Each full paint line may serve as a 'red' or 'blue' line; a full paint blue line uses up to 20% more coatings. Regardless of configuration, the maximum capacity of the entire source is 1.25 red units per hour, 0.75 blue units per hour, and 1.25 partial paint units per hour.

The following booths will be added to the source in order to complete this modification:

(a) One (1) primer/basecoat booth, one (1) clearcoat booth, and one (1) clearcoat/bake booth, identified as SV2-27, SV2-28, and SV2-29, respectively, in Partial Paint Line A, an aggregate maximum capacity of 10 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-27, SV2-28, and SV2-29, respectively.

(b) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-20, SV2-21, and SV2-22, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-20, SV2-21, and SV-22, respectively.

(c) One (1) slideout paint and clear booth, one (1) seal and base booth, and one (1) paint stripe booth, identified as SV2-13, SV2-14, and SV2-15, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-13, SV2-14, and SV2-15 respectively.

(d) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-7 and SV2-8 respectively, in Full Paint Line D, a maximum capacity of 5 units (motor homes) per

day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-7 and SV2-8, respectively.

(e) One (1) primer/basecoat booth and one (1) repair and stripe booth, identified as SV2-1 and SV2-2 respectively, in Full Paint Line E, a maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-1 and SV2-2, respectively.

The following sixteen (16) booths exist at the plant and, when combined with the booths identified above, will comprise the one (1) partial paint line and four (4) full paint lines:

(f) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-23, SV2-24, SV2-25, and SV2-26, respectively, in Full Paint Line B, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-23A, SV2-23B, SV2-24A, SV2-24B, SV2-25A, SV2-25B, SV2-26A, and SV2-26B, respectively.

(g) One (1) prep and repair booth, one (1) clear and bake booth, one (1) sand and clean booth, and one (1) clear and bake booth, identified as SV2-16, SV2-17, SV2-18, and SV2-19, respectively, in Full Paint Line C, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-16A, SV2-16B, SV2-17A, SV2-17B, SV2-18A, SV2-18B, SV2-19A, and SV2-19B, respectively.

(h) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-9, SV2-10, SV2-11, and SV2-12, respectively, in Full Paint Line D, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-9A, SV2-9B, SV2-10A, SV2-10B, SV2-11A, SV2-11B, SV2-12A, and SV2-12B, respectively.

(i) One (1) slideout booth, one (1) repair and clear booth, one (1) sand and repair booth, and one (1) reclear booth, identified as SV2-3, SV2-4, SV2-5, and SV2-6, respectively, in Full Paint Line E, an aggregate maximum capacity of 5 units (motor homes) per day, using HVLP spray application, with emissions controlled by dry filters, exhausting to stacks SV2-3A, SV2-3B, SV2-4A, SV2-4B, SV2-5A, SV2-5B, SV2-6A, and SV2-6B, respectively.

The source is located in Elkhart County which is designated as attainment or unclassifiable for all criteria pollutants. Based upon emission calculations completed by IDEM and the source, the modification exceeds the PSD significant threshold levels stated in 326 IAC 2-2-1 for VOC. Therefore, VOC was reviewed pursuant to the PSD Program (326 IAC 2-2 and 40 CFR 52.21). The PSD Program requires a BACT review and air quality modeling. BACT is an emission limitation based on the maximum degree of reduction of each pollutant subject to the PSD requirements. IDEM conducts BACT analyses in accordance with the *"Top-Down" Best Available Control Technology Guidance Document* outlined in the 1990 draft USEPA *New Source Review Workshop Manual*, which outlines the steps for conducting a top-down BACT analysis. Those steps are listed below.

(1) Identify all potentially available control options;
(2) Eliminate technically infeasible control options;

(3) Rank remaining control technologies by control effectiveness;
(4) Evaluate the most effective controls and document the results; and
(5) Select BACT.

Also in accordance with the *"Top-Down" Best Available Control Technology Guidance Document* outlined in the 1990 draft USEPA *New Source Review Workshop Manual*, BACT analyses take into account the energy, environmental, and economic impacts on the source. These reductions may be determined through the application of available control techniques, process design, and/or operational limitations. Such reductions are necessary to demonstrate that the emissions remaining after application of BACT will not cause or contribute to air pollution thereby protecting public health and the environment.

The BACT determination is based on the following information:

(1) The EPA RACT/BACT/LAER (RBLC) Clearinghouse;
(2) EPA, State, and Local air quality permits and applications; and
(3) A compilation of control technologies provided by vendors/suppliers.

SCOPE of BACT

The VOC emissions generated from the proposed modification at the Monaco Coach Corporation source in Wakarusa are associated with the following operations:

- Production line paint repairs;
- Paint preparation;
- Primer application;
- Base coat application;
- Top coat and clear coat application;
- Paint shop, Final Finish and repairs; and
- Cleaning vehicle exteriors prior to dispatch.

Step 1 - Identify Control Options

The following available technologies were identified and evaluated to control VOC emissions from the spray booths at Monaco Coach:

(1) A review of EPA's RBLC identified 110 surface coating facilities and 24 facilities in a subcategory of plastic parts. Out of these 110 facilities, none were recreational vehicle manufacturers (SIC Code 3716). Out of the 24 plastic part-coating facilities, all engaged in the coating of automotive parts. Although add-on controls did exist on a number of these facilities, the predominant compliance method was the use of compliant coatings.

(2) A review of EPA, State, and Local air quality permits and applications revealed that a number of recreational vehicle manufacturing facilities had received permits with BACT analyses. A list of those sources is provided below:

Company	Permit Type	Date Issued and State	BACT Requirements

Fleetwood #44	Significant Mod	10/19/01 (IN)	Daily usage limit Low VOC coatings Air atomized spray application Pollution prevention work practices
Dynamax	Significant Mod	7/7/00 (IN)	Basecoat limit: 6.2 lb/gal Clearcoat limit: 4.4 lb/gal HVLP spray equipment Pollution prevention work practices
Newmar	Construction	6/18/98 (IN)	HVLP spray equipment Pollution prevention work practices
Gulfstream	Construction	12/23/98 (IN)	Annual VOC limit Primer/Sealer limit: 5.64 lb/gal Basecoat limit: 6.29 lb/gal Topcoat/Clearcoat: 4.45 lb/gal HVLP spray equipment Pollution prevention work practices
Monaco	Significant Mod	10/19/01 (OR)	Pretreatment limit: 6.5 lb/gal Primer/Surfacer limit: 2.1 lb/gal Primer/Sealer limit: 3.5 lb/gal Basecoat/Clearcoat limit: 4.5 lb/gal Topcoat Limit: 3.5 lb/gal Specialty coating limit: 7.0 lb/gal HVLP spray equipment Pollution prevention work practices

(3) A variety of control technologies were evaluated by Monaco. These technologies include:

(a) The use of waterborne coatings;
(b) The use of non-photochemically reactive solvent substitutes
(c) The use of low VOC/high solids coatings with high transfer efficiency application methods and a VOC usage limit;
(d) Housekeeping practices; and
(e) Add-on controls, including:
  (i) Carbon Adsorption (including Zeolite Absorption with Catalytic Oxidation);
  (ii) Thermal Incineration
  (iii) Catalytic Incineration;
  (iv) Rotary Concentrator with Regenerative Thermal Oxidization;
  (v) Chemical Scrubbing;
  (vi) Condensation; and
  (vii) Biofiltration.

Note that any add-on control technology option determined to be technically feasible will be coupled with a VOC usage limit and then evaluated for economic feasibility.

Background on the control technologies reviewed:

1. Waterborne Coatings

Waterborne coatings are sometimes used to reduce VOC emissions from surface coatings operations. Paints and other products can be reformulated using water to replace some of the

volatile organic compounds; certain formulations of coating are not amenable to water formulation because of a reactive role of the solvent or of the solvent's ability to carry other paint components. In waterborne coatings, the water becomes a carrier solvent in the process, and is evaporated during the drying process. The drying time of waterborne coatings is dependent upon temperature and humidity, with higher humidity necessitating longer drying times. Even with the addition of a drying oven to shorten the drying time, the product cannot be handled as soon as with solvent-based coating systems. Also, current waterborne coating formulations have experienced loss of gloss and color over time compared with conventional paint systems.

2. Non-photochemically Reactive Solvent Substitutes

Non-photochemically reactive solvents are sometimes reviewed as a means of control technology because coatings containing such compounds contribute to the formation of ozone (in fact, some are considered ozone-depleting substances) and degrade ambient air quality to a lesser extent when compared to the photochemically reactive solvents found in many coatings. The following non-photochemically reactive solvent substitutes were considered as substitutes in Monaco's paint products: Methane, Ethane, 1,1,1-Trichloroethane, Methylene chloride, Trichlorotrifluoroethane (Freon 113), Trichlorofluoromethane (CFC-11), Dichlorodifluoromethane (CFC-12), Chlorodifluoromethane (FC-22), Trifluoromethane (FC-23), Dichlorotetrafluoroethane (CFC-114), Chloropentafluoroethane (CFC-115), Dichlorotrifluoroethane (HCFC-123), Tetrafluoroethane (HFC-134a), Dichlorofluoroethane (HCFC-141b), Chlorodifluoroethane (HCFC-142b), Acetone, and Parachlorobenzotrifloride (PCBF).

3. Low VOC/High Solids Coatings with High Transfer Efficiency Application Methods and a VOC usage limit

Coatings with a higher solids content intrinsically have a lower VOC content. Therefore, the use of such coatings is favorable when the need for VOC control is evaluated. Applicators with high transfer efficiencies successfully transfer the majority of the coatings used, and therefore emit potentially less VOC because less coating is required to coat the substrate.

Monaco plans on using the BASF Diamont™ coating system on motor coaches painted at the Wakarusa plant. This system consists of a high solids clear coat, base coat, and appropriate primers. The base coat proposed has the highest solids content currently available. All primers and clear coats will have a maximum VOC content of 3.5 lb/gal, and all base coats will have a maximum VOC content of 6.5 lb/gal; achieving a multi-stage coating limit of approximately 4.5 lb VOC/gal or less.

Other coatings with a higher solids content than the BASF Diamont™ coating system proposed are not compatible with the process and not utilized in the industry. The motor coaches at Monaco are painted after being fully assembled. At this point they contain components made of wood, fiberglass reinforced plastics (FRP), other plastics, tires, rubber tubing, and various other rubber parts. These components are heat sensitive, therefore eliminating the practicality of higher temperature drying ovens to accelerate the drying time and maintain the quality of finish required by Monaco customers.

Monaco plans on using High Volume-Low Pressure (HVLP) spray equipment with an effective transfer efficiency of at least 60%, or equipment with a transfer efficiency equal to or greater than HVLP spray equipment, to apply finish coatings. HVLP has been shown to significant reduce paint usage over conventional spray equipment. Because of special requirements for some pin striping work and minor repair operations, conventional spray equipment is proposed for those operations.

Some materials used in the paint areas are applied from pump-aerosol containers, brushes, and/or hand-wiped onto the surface being treated.

Monaco does not plan to operate at maximum capacity so a production limit in terms of VOC usage could be used to limit the VOC emissions from Plant 2. The use of low VOC/high solids coatings with high transfer efficiency application methods alone is not expected to provide adequate control. Combined with a VOC usage limit, such coatings and application methods are expected to provide overall VOC control greater than 80%.

4. Housekeeping Practices

Implementing good housekeeping practices can reduce VOC losses. Such practices include: sealing lids on all containers not in use or in storage, the purging of guns and lines into approved containers, maintaining an organized spill response and clean-up operation, performing routine maintenance on spray equipment and pumps to prevent drips and seal leaks, the use of solvent recovery systems to recover reusable solvents for on-site or off-site recycling, and using aqueous, exempt solvents or citric cleaners where effective and practical.

Monaco places high emphasis on housekeeping and hazardous material management. The company has a written spill response plan and pollution prevent plan. Housekeeping practices that have been implemented at Monaco to reduce VOC emissions.

5. Add-on Control: Carbon Adsorption (including Zeolite Absorption with Catalytic Oxidation)

Carbon adsorption is a process by which VOC is retained on a granular carbon surface, which is highly porous and has a very large surface-to-volume ratio. Organic vapors retained on the adsorbent are thereafter desorbed and both the adsorbate and absorbent are recovered.

Carbon adsorption systems operated in two phases: adsorption and desorption. Adsorption is rapid and removes most of the VOC in the stream. Eventually, the adsorbent becomes saturated with the vapors and the system's efficiency drops. Regulatory considerations dictate that the adsorbent be regenerated or replaced soon after efficiency begins to decline. In regenerative systems, the adsorbent is reactivated with steam or hot air and the absorbate (solvent) is recovered for reuse or disposal. Non-regenerative systems require the removal of the adsorbent and replacement with fresh or previously regenerated carbon. Non-regenerative systems are more costly and were not considered for operations at Monaco.

Similar to carbon adsorption in process, function, and control efficiency, zeolite absorption is used to absorb VOC compounds entrained in the exhaust air stream with a zeolite material. Hot air is then used to purge the absorbed material, which is then sent to a catalytic oxidizer. Zeolite absorption allows high volume - low contaminant waste streams to be concentrated into lower volume high concentrate waste streams thus reducing the size and cost of the incinerator.

6. Add-on Control: Oxidization/Incineration (Thermal and Catalytic)

There are two types of oxidizers/incinerators available for the control of VOC-laden exhaust gases: thermal and catalytic oxidizers.

An efficient thermal oxidizer design must provide adequate residence time for complete combustion, sufficiently high temperatures for VOC destruction, and adequate velocities to ensure proper mixing without quenching combustion. The type of burners and their arrangement affect combustion rates and residence time; the more thorough the contact between the flame and VOC, the shorter the time required for complete combustion. Natural gas is required to ignite the flue gas

mixtures and maintain combustion temperatures. Typically, a heat exchanger upstream of the oxidizer uses the heat content of the oxidizer flue gas to preheat the incoming VOC-laden stream to improve the efficiency of the oxidizer.

Of all the VOC control technologies evaluated, thermal oxidization is the one whose VOC reduction efficiency is least affected by waste stream characteristics. A properly designed thermal oxidizer can handle almost all solvent mixtures (except for fluorinated or chlorinated solvents), concentrations, and therefore meet all regulatory standards. While the combustion of halogenated organics will result in HCl and HF emissions which must be removed by a caustic scrubber, the principal technical deficiency of thermal oxidization is the high fuel consumption required due to the intermittent nature of the operations and the very low heating value of the waste streams. In addition to the energy penalty associated with thermal oxidization, NO_x emissions will be generated from the combustion of natural gas used to fuel the oxidizer.

Process gas streams from surface coating operations contain solid particles and high-molecular weight hydrocarbons that produce sticky condensates. Treating these process gas streams with straight thermal oxidation may prove particularly difficult and may cause serious operating and maintenance problems. For this reason, regenerative thermal oxidization is a technically favorable control option. The large ceramic packing elements characteristic of regenerative thermal oxidizers can cope with gas streams that contain sticky particulate matter or pollutants that might condense in the system. The packed beds are heating periodically to bake-out the particulate matter, thus eliminating the problem. As a result, the only thermal oxidizer technology considered for this application was regenerative thermal oxidization achieving an 95% control efficiency.

In a catalytic oxidizer, a catalyst is used to lower the activation energy for oxidation. When a preheated gas stream is passed through a catalytic oxidizer, the catalyst bed initiates and promotes the oxidation of the VOC without being permanently altered itself. In catalytic oxidization, combustion occurs at significantly lower temperatures than that of direct flame units and can also achieve a control efficiency of 95%. However, steps must be taken to ensure complete combustion. The types of catalysts used include platinum, platinum alloys, copper chromate, copper oxide, chromium, manganese, and nickel. These catalysts are deposited in thin layers on an inert substrate, usually a honeycomb shaped ceramic.

7. Add-on Control: Rotary Concentrator with Regenerative Thermal Oxidization

Rotary concentrators allow high volume - low contaminant waste streams to be concentrated into lower volume high concentrate waste streams. Rotary concentrators utilize carbon or other absorbent material to concentrate contaminants to improve thermal characteristics and reduce airflows. Typically, airflows are reduced by 90% and heating values of the waste streams are increased proportionately. The resulting fuel values from the concentrated air streams are usually sufficient to meet system oxidation requirements for continually operating systems with steady waste stream profiles. Another advantage to the use of a rotary concentrator is the significant reductions in system pressures and horsepower requirements, estimated at 75% or 10 inches water. Most of the same limitations with the absorption and incineration technologies discussed above, also apply to the rotary concentrator with regenerative thermal oxidation. In addition, factors of variable production rates and limited production hours, would significantly impact the estimated costs of operation.

8. Add-on Control: Chemical Scrubbing

A chemical scrubber is an absorption system in which the waste stream is dissolved in a solvent by passing it through a medium containing the solvent. Water is the most common solvent used, however, other solvents are used dependent upon the components of the waste stream.

9. Add-on Control: Biofiltration
Biofiltration is a relatively new technology in the United States. This system is a land intensive setup in which contaminated air is fed under an active bed of soil or other substrate containing living microorganisms. As the air rises through the soil, the microorganisms consume and convert the organic materials in the air stream to carbon dioxide and water. Biofiltration has been used with some success to control odors in Europe. However, there are a few applications of biofilters for odor or VOC control in the United States; which do include the removal of VOCs from paint exhaust streams.

10. Add-on Control: Condensation
Condensation is the process by which the temperature of the waste stream is lowered to below the boiling points of the waste constituents.

Step 2 - Eliminate technically infeasible control options

Based on the results from the RBLC database search, vendor review, and an evaluation of the control technologies, IDEM has determined that the use of: waterborne coatings, non-photochemically reactive solvents, high solid-content paints (for some coatings), chemical scrubbing, biofiltration, and condensation are not technically feasible options.

Waterborne Coatings
Monaco's motor coaches are painted after the unit is assembled. At that point, the coaches contain components made of wood, fiberglass reinforced plastics (FRP), other plastics, tires, rubber tubing, and various other rubber parts. FRP is a "heat sensitive material" as defined by the US EPA. The US EPA also recognizes that "ovens cannot be used" in the transportation industry "because these assembled products include heat sensitive materials (i.e. tires, rubber tubing, plastic parts, electrical components, etc.)". In August 1998, EPA issued guidance on the surface coating of plastic parts where it specifically acknowledged that "the nature of some plastic substrates combined with the desired finish characteristics, currently appear to require high VOC content coatings." Because of the longer drying time, the inability to use drying ovens, and lack of gloss retention, the use of waterborne coatings for coating of the exterior of the motor coaches at this facility is not considered a viable option.

Note that there are some operations at this facility where waterborne coatings are acceptable. These operations including undercoating, some adhesives, some caulks and sealants, and some prep cleaners. Waterborne coatings and products will be used for those operations where it is compatible with the process and effective. Monaco will continue to evaluate waterborne products for replacement of other solvent-based products in a continuing effort to reduce VOC and HAP emissions from all areas.

Non-photochemically Reactive Solvents
Most of the solvents identified have been associated with other environmental problems, such as stratospheric ozone depletion, cause severe health hazards, or are also identified as hazardous air pollutants (HAP). The others on this list, with the exception of acetone and more recently PCBF, are not commonly used in paint formulations.

Note that Monaco plans to evaluate the use of non-photochemically reactive solvents where impacts to employee health, employee safety and the environmental are acceptable.

Add-on Controls:
For add-on controls to be feasible, it is desirable to minimize the exhausted airflow and maximize the VOC concentration in the airflow. In the painting operations at Monaco, the concentrations in the exhaust streams are relatively low compared to the total air flow; estimated at less than 50 ppm and greater than 1,000,000 acfm for the entire paint production facility- air flow volumes are based on OSHA standards, design specifications, and actual field velocity test data. The estimated fuel value associated with the low VOC concentrations in the air flows are negligible. As a result, a higher quantity of fuel must be added from an outside source to operate most end of pipe pollution control equipment. For this reason, end-of-stack devices are a particularly expensive means of VOC control at this type of operation.

Add-on Controls: Carbon Adsorption
Note that there are several process and waste stream related factors that adversely affect the overall applicability and performance of carbon adsorption as a means of VOC control technology at a facility like Monaco. Those include:

(a) Questionable control efficiency for multiple solvents present at low concentrations. In most systems, carbon adsorption is assumed to provide a 90% control efficiency regardless of inlet VOC concentration. However, as noted below, a 90% control efficiency is unlikely for waste streams such as those found at Monaco where multiple solvents (as many as 19) are encountered at low concentrations. Carbon adsorption also has an inadequate capacity for methanol and possibly other solvent components which require large carbon beds and/or frequent regenerations because they are not readily absorbed at low concentrations.

(b) Safety hazards associated with ketones and other solvents. Ketone compounds in the solvents and coatings account for over 10 percent of the total VOC used by the plant. Ketones, like MEK, have been identified by the EPA and industrial suppliers of adsorption equipment as compounds which create a fire and explosion hazard.

(c) Steam supply needed for regeneration.

(d) Creation of wastewater containing insoluble organics that results from steam regeneration;

(e) Creation of cooling water discharge loadings on wastewater treatment facilities;

(f) Impracticality of recovery of solvents from multi-component solvent mixtures and from two-phase organic/aqueous systems; and

(g) Hazardous waste disposal cost as a result of purged organic compounds in steam condensate.

Disadvantages in the zeolite absorption with catalytic oxidation system include thermal requirements to purge the zeolite, high-pressure drops across the system and the susceptibility of the zeolite to contamination or fouling. Most of the same limitations and disadvantages associated with the carbon adsorption and incineration technologies would also apply to the zeolite absorption system.

Despite the numerous factors that adversely effect the performance and effectiveness of carbon adsorption, it is considered to be a technically feasible option for VOC control at Monaco. If the cost analysis for carbon adsorption indicates that the control is economically viable, then zeolite absorption with catalytic oxidation will be evaluated further.

Add-on Control: Oxidization/Incineration (Catalytic)
Although catalytic oxidizers can be used for the destruction of most solvents present in complex mixtures, they are not suitable for treatment of waste streams containing halogenated organics. With the presence of halogenated materials (e.g. PCFB), which can poison a catalyst, catalytic oxidization is questionable technology for the majority of streams at Monaco. In addition, when a vendor was contacted about providing an cost estimate for a catalytic incinerator for Monaco, the vendor replied that the technical feasibility of the control was very questionable and too expensive. As a result, the use of catalytic oxidation is not considered to be a technically feasible option for VOC control at Monaco.

Add-on Controls: Chemical Scrubbing
The use of a chemical scrubber is not considered a feasible option because the waste streams from Monaco's operations generally contain several components, and thus would require a different solvent for each target chemical in order to achieve the required control efficiency. Only through the use of multiple scrubbers, each utilizing a different solvent, positioned in series, would the scrubbing system effectively reduce all of the possible VOC target chemicals. This is an unreasonable and prohibitive option. As a result, the use of chemical scrubbers are not considered to be a technically feasible option for VOC control at Monaco.

Add-on Controls: Biofiltration
Biofilters are usually associated with relatively low air flow rates. Air flow rates from the 22 production paint booths in the modified paint facility would exceed 1,000,000 cubic feet per minute. For even a single booth, the 35,000 to 56,000 acfm airflows are significantly above those systems that are currently in place. As a result, biofiltration is not considered to be a technically feasible option for VOC control at Monaco.

Add-on Controls: Condensation
Given the low concentrations, and the number, of numerous VOC present in the air flows at Monaco, temperatures on the order of -160^{o}F would be required in order to obtain a significant reduction in VOC. For this reason, condensation is not considered to be a technically feasible option for VOC control at Monaco.

Step 3 - Rank remaining control technologies by control effectiveness

There are four remaining technically feasible approaches for controlling VOC emissions from the operations at Monaco:

Options for VOC Control	Overall VOC control Efficiency
Low VOC/high solids coatings, high transfer efficiency application methods and a limit on VOC usage	81%

Regenerative Thermal Oxidization	76%
Carbon Adsorption	72%
Rotary Concentration with Regenerative Thermal Oxidization	72%

(1) Regenerative Thermal Oxidization is estimated to provide an 80% capture efficiency and a 95% destruction efficiency.
(2) Carbon Adsorption is estimated to provide an 80% capture efficiency and a 90% destruction efficiency.
(3) Rotary Concentration with Regenerative Thermal Oxidization is estimated to provide an 80% capture efficiency and a 90% destruction efficiency.

Because regenerative thermal oxidization, carbon adsorption and rotary concentration with regenerative thermal oxidization are technically feasible control technologies that, if chosen, would allow for post-control VOC emissions greater than 600 tons per year (<76% x 2883 tpy = 692 tpy), their effectiveness will be further evaluated with the use of a VOC usage limit.

Step 4 - Evaluate the most effective controls and document results

Monaco provided IDEM with a thorough economic analysis of the technically feasible control options. The analysis estimated the cost of the VOC control equipment, including the initial capital cost of the various components intrinsic to the complete system, and the estimated annual operating costs. The estimated total capital cost was calculated with the use of a factoring method of determining direct and indirect installation costs. The basic equipment costs were obtained from vendor's quoted prices and from Monaco's past experience with the specific control options. Annualized costs were developed based on information from the vendors and a literature review. The analysis assumed an interest rate of 10% and an equipment life of 10 years. The basis of cost effectiveness, used to evaluate the control options, is the ratio of the annualized cost to the amount of VOC (tons) removed per year. Note that the cost effectiveness of each option only accounts for the portion of VOC removed by the add-on controls because there are no costs associated with the VOC usage limit and relatively negligible costs associated with the low VOC/high solids coatings. A summary of the cost figures determined in the analysis is provided in the table below:

Option	Total Capital Cost ($)	Total Operating Cost ($/yr) (2)	Total Annualized Costs ($/yr)	VOC removal from VOC usage limit (ton/yr)	VOC removal from add-on control (ton/yr)	Cost Effectiveness ($/ton VOC removed)
Regenerative Thermal Oxidization with a VOC usage limit (96% overall reduction) (1)	$27,249,100	$6,498,622	$10,940,225	2344	410	$26,707
Rotary Concentration with Regenerative Thermal Oxidization with a VOC usage limit (95% overall reduction) (1)	$31,534,036	$3,457,936	$8,597,984	2344	388	$22,155
Carbon Adsorption with a VOC usage limit (95% overall reduction)	$51,214,800	$9,328,775	$17,676,787	2344	388	$45,549

Low VOC/high solids coatings, high transfer efficiency application methods and a VOC usage limit (81% overall reduction)	NA	NA	NA	2344	NA	NA

NA - Not applicable
(1) Note that the figures provided for Regenerative Thermal Oxidization and Rotary Concentration represent average cost estimates from two vendors.
(2) The Total Operating Cost ($/yr) does not take into account depreciation of the control device and associated equipment.
See Appendix D for a detailed summary of the costs associated with the add-on control options.

The performance of carbon adsorption is highly questionable due to the nature and number of constituents in the waste stream.

Step 5 - Select BACT

IDEM has determined that BACT for Monaco's Wakarusa Plant 2 facility will be the utilization of low VOC/high solids coatings with high transfer efficiency application methods combined with a VOC usage limit. This determination is based on the following information: 1) low VOC/high solids coatings with high transfer efficiency application methods have been previously established as BACT at sources similar to the Monaco source; 2) the cost of the technically feasible control options are prohibitive; and 3) the fuel combustion associated with regenerative thermal oxidization and rotary concentration with regenerative thermal oxidization will generate significant non-VOC criteria pollutant emissions.

Specifically, the Permittee will comply with the following requirements determined to be BACT for Plant 2 at its Wakarusa source:

Pursuant to 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration), the source must comply with the following requirements regarding the surface coating operations performed in Partial Paint Line A and Full Paint Lines B through E at Plant 2:

(a) Lacquer thinners and preparation cleaners and solvents used on motor home exteriors will be hand-wiped and contain a maximum 6.5 pounds VOC per gallon of coating as applied.

(b) Primers will be applied using high volume-low pressure (HVLP) spray equipment and contain a maximum of 3.5 pounds VOC per gallon of coating as applied.

(c) Base coats will be applied using HVLP spray equipment and contain a maximum VOC content of 6.5 pounds VOC per gallon of coating as applied.

(d) Clear coats will be applied using HVLP spray equipment and contain a maximum VOC content of 3.5 pounds VOC per gallon of coating as applied.

(e) Sealers will be applied using HVLP spray equipment and contain a maximum VOC content of 3.5 pounds VOC per gallon of coating as applied.

(f) The average VOC content for the base coat/clear coat system will contain a maximum VOC content of 4.5 pounds VOC per gallon of coating as applied. Compliance will be demonstrated on two parts clear coat and one part base coat.

(g) Good housekeeping practices will be employed to minimize leaks, spills, and evaporative losses. These include: sealing lids on all containers not in use or in storage, the purging of guns and lines into approved containers, maintaining an organized spill response and clean-up operation, performing routine maintenance on spray equipment and pumps to prevent drips and seal leaks, the use of solvent recovery systems to recover reusable solvents for on-site or off-site recycling, and using aqueous, exempt solvents or citric cleaners where effective and practical.

(h) All primers, base coats, and clear coats used in the repair booths will be applied with air-atomized spray equipment.

(i) Motor home exteriors will be hand-wiped with cleaning solvent prior to painting.

(j) Collected solvents will be recycled on-site and off-site to recover reusable solvents and minimize waste.

(k) Motor homes will be undercoated with a waterborne-low VOC coating.

(l) The surface coating operations shall use less than 539 tons of VOC, including coatings, dilution solvents, and cleaning solvents, per twelve (12) consecutive month period with compliance determined at the end of each month.

The VOC usage limit, in conjunction with the usage of low VOC/high solids coatings and high transfer application methods listed in (a) through (k) above and the VOC emissions from the insignificant natural gas fired air-make-up units, has been incorporated to limit the potential to emit VOC from Plant 2 to less than 540.4 tons per twelve (12) consecutive month period with compliance determined at the end of each month.

Compliance with these requirements and limits will satisfy the requirements of 326 IAC 2-2 and 40 CFR 52.21 (Prevention of Significant Deterioration).

Appendix C
December 11, 2002
AIR QUALITY ANALYSIS

Source Background and Description

Source Name:	Monaco Coach Corporation
Source Location:	Plant 2, 606 Nelson's Parkway, Wakarusa, IN 46573
County:	Elkhart
SIC Code:	3716
Operation Permit No.:	T039-7559-00017
Operation Permit Issuance Date: not yet issued	
Significant Source Modification No.:	039-15620-00017
Permit Reviewer:	ERG/BS

Monaco Coach Corporation ("Monaco") operates a stationary source that assembles and paints high-quality, luxury motor homes that vary in floor plan and length. Monaco currently operates two (2) partial paint lines, two (2) full paint lines, and one (1) repair line at their Plant 2 site. The limited VOC PTE for Plant 2 is 210.8 tpy.

Introduction

On May 9, 2002, Monaco submitted an application for a PSD Significant Source Modification to the OAQ requesting to add thirteen (13) new booths to the source. These thirteen (13) new booths will be arranged with sixteen (16) existing booths to: modify one (1) partial paint line (identified a Line A), modify two (2) existing full paint lines (identified as Lines D and E), and create two new (2) full paint lines (identified as Lines B and C). Each full paint line may serve as a 'red' or 'blue' line; a full paint blue line uses up to 20% more coatings. Regardless of configuration, the maximum capacity of the entire source is 1.25 red units per hour, 0.75 blue units per hour, and 1.25 partial paint units per hour. A revised and updated application was received on June 11, 2002.

As indicated in Appendix B, IDEM has determined that BACT for Monaco's Wakarusa Plant 2 facility will be the utilization of low VOC/high solids-content coatings with high transfer efficiency application methods combined with a VOC usage limit. The VOC PTE of the modification, after the effect of controls and limits, is 329.5 tons per year.

Pursuant to 326 IAC 2-2, a modeling study was performed using the US EPA's Reactive Plume Model (RPM-IV) in order to determine the impact of VOC and NOx emissions from the 055 West and 055 East Alcohol Quench Processes on ambient ozone levels.

Engineering Environmental Consulting Services preformed the modeling for Monaco. The modeling was received on August 14, 2002. Since the source parameters changed after the modeling was submitted, OAQ performed their own air quality analysis.

Air Quality Impact Objectives

The air quality impact analysis of the permit application is to accomplish the following objectives and are individually addressed in this document in each section outlined below.

A. Establish which pollutants require an air quality analysis.

B. Demonstrate that the source will not cause or contribute to a violation of the National Ambient Air Quality Standard (NAAQS) or Prevention of Significant Deterioration (PSD) increment if the applicant exceeds significant impact levels.

C. Perform analysis of any air toxic compound for a health risk factor on the general population.

D. Perform a qualitative analysis of the source's impact on general growth, soils, vegetation and visibility in the impact area with emphasis on any Class I areas. The nearest Class I area is Kentucky's Mammoth Cave National Park, which is more than 100 kilometers from the site in Elkhart County, Indiana.

E. Summary of Air Quality Analysis

Analysis Summary

RPM-IV modeling results showed the Monaco facility would not violate the NAAQs. HAP concentrations were all below 0.5% of the PEL. There were no HAPs that had representative health risk NATA/CEP benchmarks. Based on modeling results, the source will have no significant impact to air quality.

Pollutants Analyzed for Air Quality Impact

The PSD requirements, 326 IAC 2-2, apply in attainment and unclassifiable areas and require an air quality impact analysis of each regulated pollutant emitted in significant amounts by a major stationary source or modification. Significant emission levels for each pollutant are defined in 326 IAC 2-2-1. Volatile Organic Compounds (VOCs)(an Ozone (O_3) precursor) is the pollutant that will be emitted from the plant expansion. Therefore, an air quality analysis is required for this pollutant which exceeded its significant emission rates as shown in Table 1:

TABLE 1
Significant Emission Rates for PSD

POLLUTANT	SOURCE EMISSION INCREASE [1] (Facility Total in ton/year)	SIGNIFICANT EMISSION RATE (ton/year)	PRELIMINARY AQ ANALYSIS REQUIRED
VOC (O_3)	329.5	40.0	Yes

[1] Taken from the TSD for a Prevention of Significant Deterioration (PSD) and Part 70 Significant Source Modification.

Ozone Impact Analysis

Ozone formation tends to occur in hot, sunny weather when NOx and VOC emissions photochemically react to form ozone. Many factors such as light winds, hot temperatures and sunlight are necessary for higher ozone production.

OAQ Ozone Analysis

OAQ incorporates a three-tiered approach in evaluating ozone impacts from a single source. The

first step is to determine how VOC emissions from the new source compares to area-wide VOC emissions from Elkhart County. Results from this analysis show Monaco's emission increase of 329 tons per year of VOC would comprise 1.2% of the area-wide VOC emissions from point, area, on-road and non-road mobile source and biogenic (naturally-occurring emissions from trees, grass and plants) emissions.

A second step is to review historical monitored data to determine ozone trends for an area and the applicable monitored value assigned to an area for designation determinations. This value is known as the design value for an area. The nearest ozone monitor within this region is the Bristol monitor in Elkhart County, which is approximately 30 kilometers to the Northeast of Monaco and is considered downwind of the facility. The design value for the Elkhart monitor for the 1-hour ozone standard over the latest three years (1999 – 2001) of monitoring data is 84 parts per billion (ppb).

A third step in evaluating the ozone impacts from a single source is to estimate the source individual impact through a screening procedure. The Reactive Plume Model-IV (RPM-IV) has been used in past air quality reviews to determine 1-hour ozone impacts from single VOC/NOx source emissions. RPM-IV is listed as an alternative model in Appendix B to the 40 Code of Federal Register Part 51, Appendix W A Guideline on Air Quality Models. The model is unable to simulate all meteorological and chemistry conditions present during an ozone episode (period of days when ozone concentrations are high). Results from RPM-IV are an estimation of potential ozone impacts. Modeling for 1-hour ozone concentrations was conducted for a typical high ozone day to compare to the ozone National Ambient Air Quality Standard (NAAQS) limit. The maximum cell concentration of ozone for each time and distance specified was used to compare to the ambient ozone. OAQ modeling results are shown in Table 2 below. The impact (difference between the plume-injected and ambient modes) from Monaco was 3.8 ppb. All ambient plus plume-injected modes were below the NAAQS limit for ozone at every time period and every distance. No modeled 1-hour NAAQS violations of ozone occurred.

TABLE 2 - RPM-IV Modeling for Monaco Coach

NAAQS Analysis for Ozone

Time	Distance	Ambient	Plume-Injected	Source Impact
(hour)	(meters)	(ppb)	(ppb)	(ppb)
700.0	100.0	43	43	0
800.0	6530.0	54.6	52.0	2.6
900.0	13100.0	65.5	62.9	2.6
1000.0	19500.0	79.3	75.5	3.8
1100.0	26500.0	92.6	88.8	3.8
1200.0	36400.0	102	99.1	2.9
1300.0	48500.0	107	106	1
1400.0	60400.0	110	111	-1
1500.0	73600.0	112	113	-1
1600.0	88100.0	112	115	-3
1700.0	102000.0	113	116	-3
1800.0	115000.0	113	116	-3
1900.0	126000.0	113	116	-3

Adding the 3.8 ppb source contribution to the monitor design value of 84 gives a value of 87.8 ppb. Other monitors in the area (Elkhart County) showed a design value of 102 ppb. Again, adding 3.8 ppb to 102 ppb would provide a value of 105.8 ppb. All calculated values are below the NAAQS of 120 ppb. Current ozone historical data shows that the area monitors have design values below the ozone NAAQS of 120 ppb

and Monaco's ozone impact based on the emissions and modeling will have minimal impact on ozone concentrations in the area.

Hazardous Air Pollutant Analysis and Results

As part of the air quality analysis, OAQ requests data concerning the emission of 188 Hazardous Air Pollutants (HAPs) listed in the 1990 Clean Air Act Amendments which are either carcinogenic or otherwise considered toxic. These substances are listed as air toxic compounds on the State of Indiana, Department of Environmental Management, Office of Air Quality construction permit application Form Y. Any HAP emitted from a source will be subject to toxic modeling analysis. The modeled emissions for each HAP are the total emissions, based on assumed operation of 8760 hours per year.

The OAQ review used the Industrial Source Complex Short Term (ISCST3) model, BEEST Version 8.75 to determine maximum off-property concentrations or impacts for each HAP. All regulatory default options were utilized in the United States Environmental Protection Agency (U.S. EPA) approved model, as listed in the 40 Code of Federal Register Part 51, Appendix W, Guideline on Air Quality Models. The area is considered primarily rural with a portion of the area classified as industrial, therefore a rural classification was used. The model also utilized the Schulman-Scire algorithm to account for building downwash effects. The stacks associated with the proposed facility are below the Good Engineering Practice (GEP) formula for stack heights. This indicates wind flow over and around surrounding buildings can influence the dispersion of concentrations from the stack. 326 IAC 1-7-3 requires a study to demonstrate that excessive modeled concentrations will not result from stacks with heights less than the GEP stack height formula. The aerodynamic downwash parameters were calculated using U.S. EPA's Building Profile Input Program (BPIP).

The meteorological data used in the ISCST3 model consisted of the latest year of available surface data from the South Bend, Indiana Airport National Weather Service station merged with the mixing heights from Peoria, Illinois Airport National Weather Service station. The 1994 meteorological data was purchased through the National Oceanic and Atmospheric Administration (NOAA) and National Climatic Data Center (NCDC) and preprocessed into ISCST3-ready format with U.S. EPA's PCRAMMET.

Ground-level points (receptors) surrounding the source are input into the model to determine the maximum modeled concentrations that would occur at each point. OAQ modeling utilized a Cartesian receptor grid out to 4 kilometers for all HAPs with receptors placed at distances of 100 meter intervals which includes fenceline receptors. The total number of receptors was 7732.

Maximum 8-hour concentrations were determined and the concentrations were recorded as a percentage of each HAP Permissible Exposure Limit (PEL). The PELs were established by the Occupational Safety and Health Administration (OSHA) and represent a worker's exposure to a pollutant over an 8-hour work day or a 40-hour work week. In Table 4 below, the results of the HAP analysis with the emission rates, modeled concentrations and the percentages of the PEL for each HAPs are listed. All HAP concentrations were modeled below 0.5% of their respective PEL. The 0.5% of the PEL represents a safety factor of 200 taken into account when determining the health risk of the general population.

TABLE 4 - Hazardous Air Pollutant Analysis				
Hazardous Air Pollutants	**HAP Emissions**	**Maximum 8-hour concentrations**	**PEL**	**% of PEL**
	(tons/year)	(ug/m3)	(ug/m3)	(%)
Methyl Alcohol	7	11.8	260000	.005
Methyethyl	2	4.4	590000	.001
Methyisobutyl Ketone	22	39.2	410000	.010
Xylene	85	149.3	435000	.034
Toluene	101	180.4	750000	.024
Ethylbenzene	28	49.8	435000	.011

A health risk-based analysis was not performed because none of the above HAPs had a NATA/CEP benchmark associated with it.

Additional Impact Analysis

PSD regulations require additional impact analysis be conducted to show that impacts associated with the facility would not adversely affect the surrounding area.

Economic Growth and Impact of Construction Analysis

Monaco will employ 100 plus people selected from the local and regional area once the modification is operational. Secondary emissions are not expected to significantly impact the area as all roadways will be paved. Industrial and residential growth is predicted to have negligible impact in the area since it will be dispersed over a large area and new home construction is not expected to significantly increase. Any commercial growth, as a result of the proposed facility, will occur at a gradual rate and will be accounted for in the background concentration measurements from air quality monitors. A minimal number of support facilities will be needed. There will be no adverse impact in the area due to industrial, residential or commercial growth.

Soils Analysis

Secondary NAAQS limits were established to protect general welfare, which includes soils, vegetation, animals and crops. Soil types in Elkhart County are of the Sandy and Loamy Lacustrine deposits, Eolian Sand, Alluvial and Outwash deposits, and Eolian Sand deposits. The general landscape consists of gently rolling terrain (1816-1966 Natural Features of Indiana - Indiana Academy of Science). According to the modeled concentrations of VOC and HAPs analysis, the soils will not be adversely affected by the facility.

Vegetation Analysis

Due to the agricultural nature of the land, crops in the Elkhart County area consist mainly of corn, wheat and soybeans (1997 Agricultural Census for Elkhart County). The maximum modeled concentrations of Monaco for VOCs are well below the threshold limits necessary to have adverse impacts on surrounding

vegetation such as autumn bent, nimblewill, barnyard grass, bishopscap and horsetail milkweed (Flora of Indiana - Charles Deam). Livestock in Elkhart County consist mainly of hogs, beef and milk cows (1992 Agricultural Census for Elkhart County) and will not be adversely impacted from the facility. Trees in the area are mainly hardwoods. These are hardy trees and no significant adverse impacts are expected due to modeled concentrations.

Federal and State Endangered Species Analysis

Federally endangered or threatened species as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana includes 12 species of mussels, 4 species of birds, 2 species of bat and butterflies and 1 species of snake. The agricultural nature of the land overall has disturbed the habitats of the butterflies and snake and the proposed facility is not expected to impact the area further. The mussels and birds listed are commonly found along major rivers and lakes while the bats are found near caves. A detailed listing of Federal and State endangered species for Indiana can be found on the internet at www.in.gov/dnr/naturepr/species/. The impacts from Monaco's modification are not expected to adversely impact these species.

Federally endangered or threatened plants as listed in the U.S. Fish and Wildlife Service, Division of Endangered Species for Indiana list two threatened and one endangered species of plants. The endangered plant is found along the sand dunes in northern Indiana while the two threatened species do not thrive on cultivated or grazing land. The proposed facility is not expected to impact the area further.

The state of Indiana list of endangered, special concern and extirpated nongame species, as listed in the Department of Natural Resources, Division of Fish and Wildlife, contains species of birds, amphibians, fish, mammals, mollusks and reptiles which may be found in the area. However, the impacts are not expected to have any additional adverse effects on the habitats of the species than what has already occurred from the agricultural activity in the area.

Additional Analysis Conclusions

The nearest Class I area to Monaco is the Mammoth Cave National Park located approximately 540 kilometers southeast in Kentucky. Monaco is located well beyond 100 kilometers from Mammoth Cave National Park and will not have significant impact on the Class I area. The results of the additional impact analysis conclude the Monaco's RV facility's expansion will have no adverse impact on economic growth, soils, vegetation, and endangered or threatened species.

Appendix D: BACT Economic Analysis
of Technically Feasible Control Options

Company Name: Monaco Coach Corporation, Plant 2
Address City IN Zip: 606 Nelson's Parkway, Wakarusa, IN 46573
Permit Number: 039-15620-00017
Reviewer: ERG/BS
Date: 10/31/02

		manufacturer:	Adwest		Durr	
	(1,000,000 CFM System)	Regenerative	Rotary	Regenerative	Rotary
PTE of mod (tpy VOC) =	2883	Carbon	Thermal	Concentrator	Thermal	Concentrator
		Absorption	Oxidizer	w/ RTO	Oxidizer	w/ RTO
Purchase Costs	factor					
basic equipment		$ 20,000,000	$ 10,832,060	$ 13,650,000	$ 12,675,000	$ 13,600,000
instruments & controls	10%	$ 2,000,000	$ 1,083,206	$ 1,365,000	$ 1,267,500	$ 1,360,000
steam plant	10%	$ 2,000,000	-	-	-	-
taxes	5%	$ 1,000,000	$ 541,603	$ 682,500	$ 633,750	$ 680,000
freight	5%	$ 1,000,000	-	-	$ 633,750	$ 680,000
total purchase cost		$ 26,000,000	$ 12,456,869	$ 15,697,500	$ 15,210,000	$ 16,320,000
Direct Costs						
support installation	8%	$ 2,080,000	$ 996,550	$ 1,255,800	$ 1,216,800	$ 1,305,600
ducting	15%	$ 3,900,000	$ 1,868,530	$ 2,354,625	$ 2,281,500	$ 2,448,000
erection and handling	14%	$ 3,640,000	$ 1,743,962	$ 2,197,650	$ 2,129,400	$ 2,284,800
electrical	6%	$ 1,560,000	$ 747,412	$ 941,850	$ 912,600	$ 979,200
piping	2%	$ 520,000	$ 249,137	$ 313,950	$ 304,200	$ 326,400
insulation	1%	$ 260,000	$ 124,569	$ 156,975	$ 152,100	$ 163,200
painting	1%	$ 260,000	$ 124,569	$ 156,975	$ 152,100	$ 163,200
total direct cost		$ 12,220,000	$ 5,854,728	$ 7,377,825	$ 7,148,700	$ 7,670,400
Indirect Costs						
engineering	10%	$ 3,822,000	$ 1,831,160	$ 2,307,533	$ 2,235,870	$ 2,399,040
construction exp	5%	$ 1,911,000	$ 915,580	$ 1,153,766	$ 1,117,935	$ 1,199,520
construction fee	10%	$ 3,822,000	$ 1,831,160	$ 2,307,533	$ 2,235,870	$ 2,399,040
start-up fee	2%	$ 764,400	$ 366,232	$ 461,507	$ 447,174	$ 479,808
performance test	2%	$ 764,400	$ 366,232	$ 461,507	$ 447,174	$ 479,808
contingency	5%	$ 1,911,000	$ 915,580	$ 1,153,766	$ 1,117,935	$ 1,199,520
total indirect cost		$ 12,994,800	$ 6,225,943	$ 7,845,611	$ 7,601,958	$ 8,156,736
TOTAL CAPITAL COST		**$ 51,214,800**	**$ 24,537,541**	**$ 30,920,936**	**$ 29,960,658**	**$ 32,147,136**
Direct Operating Costs	($/hr)					
operating labor	$30.00	$ 16,425	$ 16,425	$ 16,425	$ 16,425	$ 16,425
supervisory labor	$50.00	$ 27,375	$ 27,375	$ 27,375	$ 27,375	$ 27,375
maintenance labor	$30.00	$ 16,425	$ 16,425	$ 16,425	$ 16,425	$ 16,425
maintenance materials		$ 16,425	$ 16,425	$ 16,425	$ 16,425	$ 16,425
replacement parts		$ 5,200,000	$ 622,843	$ 1,569,750	$ 760,500	$ 1,632,000
electricity		$ 1,839,600	$ 1,419,120	$ 630,720	$ 1,878,144	$ 946,080
water		$ 4,875	-	-	-	-
steam		$ 44,850	-	-	-	-
fuel		-	$ 3,317,850	-	$ 3,118,560	-
sewer cooling water		$ 8,775	-	-	-	-
haz waste (condensate)		$ 571,591	-	-	-	-
total direct operating cost		$ 7,746,341	$ 5,436,463	$ 2,277,120	$ 5,833,854	$ 2,654,730
Indirect Operating Costs						
overhead	60%	$ 45,990	$ 45,990	$ 45,990	$ 45,990	$ 45,990
abministration charges	2%	$ 1,024,296	$ 490,751	$ 618,419	$ 599,213	$ 642,943
insurance	1%	$ 512,148	$ 245,375	$ 309,209	$ 299,607	$ 321,471
total indirect operating cost		$ 1,582,434	$ 782,116	$ 973,618	$ 944,810	$ 1,010,404
TOTAL OPERATING COST		**$ 9,328,775**	**$ 6,218,580**	**$ 3,250,738**	**$ 6,778,664**	**$ 3,665,134**
capital recovery costs	(0.163)	$ 8,348,012	$ 3,999,619	$ 5,040,112	$ 4,883,587	$ 5,239,983
TOTAL ANNUALIZED COST		**$ 17,676,787**	**$ 10,218,199**	**$ 8,290,851**	**$ 11,662,251**	**$ 8,905,117**
Destruction efficiency		90.0%	95.0%	90.0%	95.0%	90.0%
Tons controlled (with 80% capture)		2075.8	2191.1	2075.8	2191.1	2075.8
Cost per ton of VOC removed		$ 8,516	$ 4,664	$ 3,994	$ 5,323	$ 4,290
Overall efficiency		72%	76%	72%	76%	72%

averages	CA	RTO	RC w/ RTO
TOTAL CAPITAL COSTS	**$ 51,214,800**	**$ 27,249,099**	**$ 31,534,036**
TOTAL OPERATING COST	**$ 9,328,775**	**$ 6,498,622**	**$ 3,457,936**
TOTAL ANNUALIZED COSTS	**$ 17,676,787**	**$ 10,940,225**	**$ 8,597,984**
cost per voc ton	**$ 8,516**	**$ 4,993**	**$ 4,142**
Tons controlled/yr	**2076**	**2191**	**2076**

Appendix D: BACT Economic Analysis
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Permit Number: 039-15620-00017
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		manufacturer:	Adwest		Durr	
	(1,000,000 CFM System)	Regenerative	Rotary	Regenerative	Rotary
PTE of mod (tpy VOC) =	2883	Carbon Absorption	Thermal Oxidizer	Concentrator w/ RTO	Thermal Oxidizer	Concentrator w/ RTO
Purchase Costs	factor					
basic equipment		$ 20,000,000	$ 10,832,060	$ 13,650,000	$ 12,675,000	$ 13,600,000
instruments & controls	10%	$ 2,000,000	$ 1,083,206	$ 1,365,000	$ 1,267,500	$ 1,360,000
steam plant	10%	$ 2,000,000	-	-	-	-
taxes	5%	$ 1,000,000	$ 541,603	$ 682,500	$ 633,750	$ 680,000
freight	5%	$ 1,000,000	-	-	$ 633,750	$ 680,000
total purchase cost		$ 26,000,000	$ 12,456,869	$ 15,697,500	$ 15,210,000	$ 16,320,000
Direct Costs						
support installation	8%	$ 2,080,000	$ 996,550	$ 1,255,800	$ 1,216,800	$ 1,305,600
ducting	15%	$ 3,900,000	$ 1,868,530	$ 2,354,625	$ 2,281,500	$ 2,448,000
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insulation	1%	$ 260,000	$ 124,569	$ 156,975	$ 152,100	$ 163,200
painting	1%	$ 260,000	$ 124,569	$ 156,975	$ 152,100	$ 163,200
total direct cost		$ 12,220,000	$ 5,854,728	$ 7,377,825	$ 7,148,700	$ 7,670,400
Indirect Costs						
engineering	10%	$ 3,822,000	$ 1,831,160	$ 2,307,533	$ 2,235,870	$ 2,399,040
construction exp	5%	$ 1,911,000	$ 915,580	$ 1,153,766	$ 1,117,935	$ 1,199,520
construction fee	10%	$ 3,822,000	$ 1,831,160	$ 2,307,533	$ 2,235,870	$ 2,399,040
start-up fee	2%	$ 764,400	$ 366,232	$ 461,507	$ 447,174	$ 479,808
performance test	2%	$ 764,400	$ 366,232	$ 461,507	$ 447,174	$ 479,808
contingency	5%	$ 1,911,000	$ 915,580	$ 1,153,766	$ 1,117,935	$ 1,199,520
total indirect cost		$ 12,994,800	$ 6,225,943	$ 7,845,611	$ 7,601,958	$ 8,156,736
TOTAL CAPITAL COST		$ 51,214,800	$ 24,537,541	$ 30,920,936	$ 29,960,658	$ 32,147,136
Direct Operating Costs	($/hr)					
operating labor	$30.00	$ 16,425	$ 16,425	$ 16,425	$ 16,425	$ 16,425
supervisory labor	$50.00	$ 27,375	$ 27,375	$ 27,375	$ 27,375	$ 27,375
maintenance labor	$30.00	$ 16,425	$ 16,425	$ 16,425	$ 16,425	$ 16,425
maintenance materials		$ 16,425	$ 16,425	$ 16,425	$ 16,425	$ 16,425
replacement parts		$ 5,200,000	$ 622,843	$ 1,569,750	$ 760,500	$ 1,632,000
electricity		$ 1,839,600	$ 1,419,120	$ 630,720	$ 1,878,144	$ 946,080
water		$ 4,875	-	-	-	-
steam		$ 44,850	-	-	-	-
fuel		-	$ 3,317,850	-	$ 3,118,560	-
sewer cooling water		$ 8,775	-	-	-	-
haz waste (condensate)		$ 571,591	-	-	-	-
total direct operating cost		$ 7,746,341	$ 5,436,463	$ 2,277,120	$ 5,833,854	$ 2,654,730
Indirect Operating Costs						
overhead	60%	$ 45,990	$ 45,990	$ 45,990	$ 45,990	$ 45,990
abministration charges	2%	$ 1,024,296	$ 490,751	$ 618,419	$ 599,213	$ 642,943
insurance	1%	$ 512,148	$ 245,375	$ 309,209	$ 299,607	$ 321,471
total indirect operating cost		$ 1,582,434	$ 782,116	$ 973,618	$ 944,810	$ 1,010,404
TOTAL OPERATING COST		$ 9,328,775	$ 6,218,580	$ 3,250,738	$ 6,778,664	$ 3,665,134
capital recovery costs	(0.163)	$ 8,348,012	$ 3,999,619	$ 5,040,112	$ 4,883,587	$ 5,239,983
TOTAL ANNUALIZED COST		$ 17,676,787	$ 10,218,199	$ 8,290,851	$ 11,662,251	$ 8,905,117
Destruction efficiency		90.0%	95.0%	90.0%	95.0%	90.0%
PTE after production limit		539.0	539.0	539.0	539.0	539.0
Tons controlled (with 80% capture)		388.1	409.6	388.1	409.6	388.1
Cost per ton of VOC removed		$ 45,549	$ 24,944	$ 21,364	$ 28,470	$ 22,947

avg	**CA**	**RTO**	**RC w/ RTO**
TOTAL CAPITAL COSTS	**$ 51,214,800**	**$ 27,249,099**	**$ 31,534,036**
TOTAL OPERATING COST	**$ 9,328,775**	**$ 6,498,622**	**$ 3,457,936**
TOTAL ANNUALIZED COSTS	**$ 17,676,787**	**$ 10,940,225**	**$ 8,597,984**
cost per voc ton	**$ 45,549**	**$ 26,707**	**$ 22,155**
Tons controlled/yr	**2732**	**2754**	**2732**
Overall efficiency	**95%**	**96%**	**95%**